Scientific Activities of the Government of British Columbia 1987–1988 Survey Results

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FOREWORD

This report presents a summary of results of the annual survey of scientific activities of the Government of British Columbia. The survey was conducted in May 1988 by Rose Krakower of the Science, Technology and Capital Stock Division under contract to the Ministry of Advanced Education and Job Training.

The tabulations include 1987-88 (actual) and 1988-89 (estimate) data on scientific activities in the natural and social sciences and humanities. This is the first year that person-years and associated costs devoted to the administration of extramural programs (AEP) are being shown separately. These data have in previous years been included with the intramural activities of the individual ministry. Data on scientific activities in the social sciences and humanities were not collected for 1982-83 and 1984-85 but are estimates provided in the respective previous year.

In July 1988 there was a major reorganization of the ministries within the Government of British Columbia. This report presents the situation as it stood at the time of the survey, that is, prior to this reorganization.

Science surveys, like many other surveys, are based on the respondents' interpretations of definitions and methods of calculation. Accounting records, which use a science-based classification are rarely used. Notwithstanding that the data are estimates, they are a good representation of current science expenditures and manpower utilization for the province.

The first surveys of government scientific activities at the provincial level were conducted in the provinces of Ontario, Alberta and Nova Scotia in 1974; Saskatchewan was included in 1975 and British Columbia in 1977. Nova Scotia which had dropped out of the survey in 1977 due to lack of science policy user groups within the province, has in 1988 renewed its interest in measuring its scientific activities. In 1984 New Brunswick carried out its first survey, followed by Manitoba and Newfoundland in 1985 and 1986 respectively. Reports, similar to this one for the other provinces are available on request from the sponsoring ministry or department. A list of contacts is appended to this report. A summary report, including a historical account of all science activities at the provincial government level, is now available from Statistics Canada.

Although there are several purposes for the survey, it is principally a data base for analysis and formulation of provincial science policy. Data are used as a basis for intergovernmental and intersectoral comparison. The survey also provides data for the development of a national aggregate R&D series, which is published by Statistics Canada in the various publications listed at the end of this report. The national aggregates are required to complete the international questionnaires for the Organization for Economic Cooperation and Development (OECD) and the United Nations Education, Scientific and Cultural Organization (UNESCO).

The goodwill and efforts of the officials of the responding ministries and the assistance of Mr. T. A. Prentice, Manager, Science and Technology Division, Ministry of Advanced Education and Job Training are gratefully acknowledged and appreciated.

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by Ministry or Agency	2	15	24	45	46	69
by Performer	3	16	25	46	47	70
Total Expenditures on R&D:						
by Performer	4	16	26	46	48	70
by Ministry or Agency	5	17	27	47	49	71
Ministerial Personnel Engaged in Scientific Activities,						
by Activity and Category	6	18	28	48	50	72
Expenditures in 1987-88 Fiscal Year:						
Total Expenditures:						
by Ministry or Agency and Sources of Funds	7	19	29	49	51	73
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by Ministry or Agency and Performer	9	21	31	51	53	75
by Ministry or Agency and Activity	10	22	32	52	54	76
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	Table	Page	Table	Page	Table	Page
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by Activity and Performer	16	32	38	58	60	85
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by Ministry or Agency and Activity	18	34	40	60	62	87
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The following symbols are used in this report:

-	nil or zero
--	amount too small to be expressed
...	Figures are not available or not applicable
r	revised figures
e	estimated figures

HIGHLIGHTS

In the 1987-88 fiscal year the Government of British Columbia spent $113.2 million or 1.0% of its estimated 1987-88 budget on scientific activities. While total government expenditures for 1988-89 are estimated to increase by 6.9%, scientific expenditures are expected to rise by 13.0%.

TEXT TABLE I. B.C. Government Expenditures

Year	GDP implicit price index[1] (1981=100)	Expenditures on scientific activities		Provincial budgeted expenditures[2]	Scientific activities/ provincial budget
		Current dollars	1981 dollars		
		($'000,000)		($'000,000)	(%)
1980-81	90.2	88.2	97.8	6,059.4	1.5
1981-82	100.0	83.9	83.9	7,087.5	1.2
1982-83	108.7	87.1	80.1	7,513.3	1.2
1983-84	114.1	76.9	67.4	8,356.4	0.9
1984-85	118.0	67.7	57.4	8,783.8	0.8
1985-86	121.7	81.1	66.6	9,146.3	0.9
1986-87	125.3	93.1	74.3	9,749.0	1.0
1987-88	131.0	113.2	86.4	11,071.4	1.0
1988-89[e]	...	127.9	...	11,835.0	1.1

1 Source: Bank of Canada Review, March 1988
2 Province of British Columbia: Estimates of Revenues and Expenditures

TEXT TABLE II. Total Expenditures on Scientific Activities, by Science Type and Activity, 1981-82 to 1988-89

Science and activity	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Natural sciences:								
Research and development	24,678	23,174	21,580	20,180	25,489	26,106	32,697	38,342
Related scientific activities ...	32,366	34,223	34,234	29,926	34,853	43,376	54,029	60,595
Sub-total	57,044	57,397	55,814	50,106	60,342	69,482	86,726	98,937
Social sciences and humanities[1]:								
Research and development	780	762	983	1,019	763	526	771	643
Related scientific activities ...	26,026	28,930	20,070	16,576	19,985	23,060	25,702	28,328
Sub-total	26,806	29,692	21,053	17,595	20,748	23,586	26,473	28,971
All sciences:								
Research and development	25,458	23,936	22,563	21,199	26,252	26,632	33,468	38,985
Related scientific activities ...	58,392	63,153	54,304	46,502	54,838	66,436	79,731	88,923
Total	**83,850**	**87,089**	**76,867**	**67,701**	**81,090**	**93,068**	**113,199**	**127,908**

1 Estimate data for 1982-83 and 1984-85

Of the total 1987-88 science expenditures, 76.6% ($86.7 million) was for activities in the natural sciences. For this period, $33.5 million was allocated to research and development (R&D). The portion of R&D expenditures to total science expenditures in the natural sciences was 37.7% ($32.7 million) in contrast with 2.9% ($0.8 million) in the social sciences. Major support of R&D in the natural sciences came from the Ministry of Forests and Lands, the Health Care Research Foundation, the Science Council, the Ministry of Advanced Education and Job Training and the Ministry of Environment and Parks. Technical surveys, supported mainly by the Ministry of Environment and Parks and the Ministry of Forests and Lands was the major related scientific activity.

Social science and humanities' activities accounted for 23.4% ($26.5 million) of the total 1987-88 science expenditures. The Ministry of Economic Development, the Ministry of Education and the Ministry of Tourism, Recreation and Culture together spent $15.7 million on scientific activities in the social sciences and humanities.

TEXT TABLE III. B.C. Government Expenditures on Science, by Activity and Performer, 1987-88

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council	Other	Total
	($ millions)						
Natural sciences:							
R&D	14,816	5,300	7,696	341	1,599	2,945	32,697
RSA	44,007	8,574	1,148	-	125	175	54,029
Social sciences:							
R&D	501	190	-	-	-	80	771
RSA	19,888	4,291	370	88	200	865	25,702
All sciences:							
R&D	15,317	5,490	7,696	341	1,599	3,025	33,468
RSA	63,895	12,865	1,518	88	325	1,040	79,731
Total	**79,212**	**18,355**	**9,214**	**429**	**1,924**	**4,065**	**113,199**

Note: In this report the science expenditures of the B.C. Research Council reflect only the yearly grant from the B.C. government. Additional information on the BCRC is available in Science Statistics, Catalogue No 88-001, Vol 12, No 10.

The main government performer of R&D, the Ministry of Forests and Lands,Related scientific activities (RSA) were primarily an intramural activity. Approximately 64% of this activity was performed by three government ministries, notably the Ministry of Energy, Mines and Petroleum Resources, the Ministry of Environment and Parks and the Ministry of Forests and Lands.

TEXT TABLE IV. Total Expenditures on Science, by Sources of Funds, 1987-88

Ministry or agency	Ministerial budget	Transfers from other ministries	Transfers from federal government	Other sources	Total
	($000)				
Advanced Education & Job Training	3,984	-	1,024	-	5,008
Economic Development	8.085	215	475	-	8,775
Energy, Mines & Petroleum Resources	9,719	-	877	-	10,596
Environment & Parks	26,970	-	-	671	27,641
Forests & Lands	27,703	40	2,381	-	30,124
Health[1]	1,314	-	-	5,020	6,334
Science Council of B.C.	-	3,800	135	221	4,156
Tourism, Recreation and Culture	5,001	-	636	600	6,237
Other	13,559	-	769	-	14,328
Total	**96,335**	**4,055**	**6,297**	**6,512**	**113,199**

1 Includes Health Care Research Foundation.

The ministerial budget was the source of over 85% of the funds expended on scientific activities. Other sources included transfers from the B.C. Lotteries Fund.

TEXT TABLE V. Objectives of B.C. Government Science Expenditures

Objective	1987-88		1988-89*	
	($000)	%	($000)	%
Energy & fuels:				
Fossil fuels	3,033	2.7	3,072	2.4
Other	1,353	1.2	1,385	1.1
Environmental issues:				
Air	3,099	2.7	1,837	1.4
Other	6,850	6.1	6,379	5.0
Health	6,603	5.8	8,346	6.5
Industrial & economic development:				
Agriculture	4,235	3.7	4,004	3.1
Forestry	33,568	29.7	42,344	33.1
Minerals	7,907	7.0	9,310	7.3
Other	10,032	8.9	10,560	8.3
Social development:				
Culture, sport & recreation	9,168	8.1	10,049	7.9
Education	4,283	3.8	5,500	4.3
Other	4,554	4.0	4,385	3.4
Wildlife	1,925	1.7	1,960	1.5
All other	16,589	14.6	18,777	14.7
Total	**113,199**	**100.0**	**127,908**	**100.0**

The major applications of science activities are reflected in Figure V. Almost 50% of the Government's science expenditures were devoted to industrial and economic development in 1987-88. Forestry continued to be the prime objective accounting for almost 30% of the expenditures. The major supporters of these applications are the Ministry of Forests and Lands, the Ministry of Energy, Mines and Petroleum Resources and the Ministry of Economic Development.

As expected, social development was the focus of science expenditures in the social sciences and humanities. The Ministry of Tourism, Recreation and Culture, the Provincial Secretary and Government Services and the Ministry of Education were the most active in this area. The application with the largest expenditures was culture, sport and recreation.

Approximately 3% (1,247 person-years) of the provincial government labour force were devoted to scientific activities in 1987-88. The scientific and professional category accounted for 47% of the total. The technical category was the largest group engaged in scientific activities in the natural sciences. Almost $34 million of extramural programs were administered by 39 PYs.

TEXT TABLE VI. Ministerial Personnel Engaged in Scientific Activities, by Science Type and Category, 1987-88

Science type and activity	Scientific & professional	Technical	Other	Total
	(person-years)			
Natural sciences:				
R&D	117	82	29	228
RSA	231	304	106	641
AEP	8	7	9	24
Total	356	393	144	893
Social sciences:				
R&D	6	-	-	6
RSA	217	25	91	333
AEP	11	2	2	15
Total	234	27	93	354
All sciences:				
R&D	123	82	29	234
RSA	448	329	197	974
AEP	19	9	11	39
Total	**590**	**420**	**237**	**1,247**

1 Administration of Extramural Programs.

All Sciences

TABLE 1. Total Expenditures, by Activity, 1981-82 to 1988-89

Activity	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87[r]	1987-88	1988-89[e]
	($'000)							
Research & development:								
Current expenditures:								
In-house	12,826	13,029	11,827	11,017	12,615	13,491	13,223	13,849
Contracts	2,149	1,694	1,838	2,849	3,071	3,812	4,732	5,908
Grants	9,308	7,679	7,661	5,910	8,903	7,079	12,740	13,254
Research fellowships	859	1,070	1,042	1,218	1,251	1,395	1,108	2,760
Administration of extramural R&D programs	...	...	...	...	...	...	1,056	1,155
Sub-total	25,142	23,472	22,368	20,994	25,840	25,777	32,859	36,926
Capital expenditures	316	464	195	205	412	855	609	2,059
Related scientific activities:								
Current expenditures	57,166	62,115	53,550	45,651	53,973	64,969	74,984	84,152
Administration of extramural RSA programs	...	...	...	...	...	...	775	799
Capital expenditures	1,226	1,038	754	851	865	1,467	3,972	3,972
Total	**83,850**	**87,089**	**76,867**	**67,701**	**81,090**	**93,068**	**113,199**	**127,908**

TABLE 2. Total Expenditures, by Ministry or Agency, 1981-82 to 1988-89

Ministry or agency	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87[r]	1987-88	1988-89[e]
	($'000)							
Advanced Education & Job Training	...	...	...	...	...	...	5,008	7,373
Agriculture & Fisheries	...	...	...	...	...	...	4,646	5,039
Agriculture & Food	1,785	1,760	1,996	1,717	2,945	3,301	...	...
Attorney General	1,330	1,369	757	846	837	848	1,533	1,310
Consumer & Corporate Affairs	616	562	539	450	439	679	...	...
Economic Development	...	...	...	...	...	...	8,775	8,775
Education	1,907	1,897	1,160	900	2,403	2,559	3,499	4,670
Energy, Mines & Petroleum Resources	8,529	10,421	13,160	4,330	6,197	9,267	10,596	12,898
Environment	19,369	20,626	17,691	18,715	18,770	22,676	...	...
Environment & Parks	...	...	...	...	...	...	27,641	26,957
Finance	2,052	2,277	–	–	52	95	...	...
Finance & Corporate Affairs	...	...	...	...	...	...	381	443
Forests	18,945	19,411	18,416	17,164	21,018	24,188	...	...
Forests & Lands	...	...	...	...	...	...	30,124	38,036
Health	1,751	1,780	1,436	1,602	1,960	1,670	1,364	1,194
Health Care Research Foundation	3,033	3,372	3,532	3,611	3,578	3,574	4,970	5,200
Human Resources	...	...	250	316	301	595	...	...
Industry & Small Business Development	8,240	8,240	5,348	5,348	4,539	6,121	...	...
International Trade, Science & Investment	...	...	...	...	3,828	3,242	...	...
Labour	1,208	1,236	157	157	393	352	...	...
Labour & Consumer Services	...	...	...	...	...	...	175	975
Lands, Parks & Housing	204	546	620	766	...	372	...	...
Municipal Affairs	274	351	389	391	510	766	749	731
Postsecondary Education	...	...	...	...	1,883	1,561	...	...
Provincial Secretary & Government Services	5,897	5,861	5,182	6,220	7,126	6,740	2,256	3,027
Science Council of B.C.	5,840	4,209	4,002	3,450	3,800	3,800	4,156	4,100
Social Services & Housing	...	...	...	...	...	...	855[e]	900[e]
Tourism	261	300	323	393	215	353	...	...
Tourism, Recreation & Culture	...	...	...	...	...	...	6,237	5,970
Transportation & Highways	952	1,086	345	425	296	309	234	310
Universities, Science & Communications	1,657	1,785	1,564	900	...	...	...	...
Total	**83,850**	**87,089**	**76,867**	**67,701**	**81,090**	**93,068**	**113,199**	**127,908**

TABLE 3. Total Expenditures, by Performer, 1981-82 to 1988-89

Performer	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87[r]	1987-88	1988-89[e]
	($'000)							
Intramural	59,239	64,102	52,344	50,526	59,819	68,793	79,212	86,084
Industry	12,499	12,315	14,510	7,144	8,706	11,576	18,355	22,332
Universities	6,207	5,321	5,697	5,854	6,309	6,819	9,214	10,703
Hospitals & health organizations	173	257	330	202	2,319[2]	474	429	1,500[3]
B.C. Research Council[1]	2,005	1,895	1,765	1,168	1,026	1,296	1,924	2,150
Other	3,727	3,199	2,221	2,807	2,911	4,110	4,065	5,139
Total	**83,850**	**87,089**	**76,867**	**67,701**	**81,090**	**93,068**	**113,199**	**127,908**

1 Includes only annual funding by Provincial Government.
2 Includes a $2.0 million grant to the Biomedical Processing Centre.
3 Includes a $1.0 million grant to the Biomedical Processing Centre.

TABLE 4. Total Expenditures on R&D, by Performer, 1981-82 to 1988-89

Performer	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89[e]
	($'000)							
Intramural	13,788	14,027	12,505	11,511	13,376	14,464	15,317	17,798
Industry	2,938	2,299	2,246	2,024	2,274	2,243	5,490	5,197
Universities	6,147	5,270	5,259	5,356	5,447	5,753	7,696	9,252
Hospitals & health organizations	124	203	290	162	2,260[2]	403	341	1,500[3]
B.C. Research Council[1]	1,494	1,227	1,147	594	515	790	1,599	1,625
Other	967	910	1,116	1,552	2,380	2,979	3,025	3,613
Total	**25,458**	**23,936**	**22,563**	**21,199**	**26,252**	**26,632**	**33,468**	**38,985**

1 Includes only annual funding by Provincial Government.
2 Includes a $2.0 million grant to the Biomedical Processing Centre.
3 Includes a $1.0 million grant to the Biomedical Processing Centre.

TABLE 5. Total Expenditures on R&D, by Ministry or Agency, 1981-82 to 1988-89

Ministry or agency	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Advanced Education & Job Training	...	...	...	...	...	...	2,875	5,095
Agriculture & Fisheries	...	...	...	...	...	...	1,313	1,517
Agriculture & Food	831	577	695	345	150	486	...	...
Attorney General	182	193	125	125	54	60	-	-
Consumer & Corporate Affairs	-	-	-	-	-	-	...	...
Economic Development	...	...	...	...	...	...	50	50
Education	-	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	1,370	1,290	1,393	866	1,003	200	-	-
Environment	2,251	2,284	1,809	1,752	2,087	2,069	...	...
Environment & Parks	...	...	...	...	...	...	1,820	1,741
Finance	-	-	-	-	-	-	...	...
Finance & Corporate Affairs	...	...	...	...	...	...	-	-
Forests	9,841	9,866	8,688	9,481	11,915	14,563	...	...
Forests & Lands	...	...	...	...	...	...	17,438	20,574
Health	137	102	153	160	410	95	99	48
Health Care Research Foundation	3,033	3,372	3,532	3,611	3,578	3,574	4,970	5,200
Human Resources	...	...	45	58	55	49	...	...
Industry & Small Business Development	-	-	25	25	20	60	...	...
International Trade, Science & Investment	...	...	...	...	2,676	1,249	...	...
Labour	-	-	-	-	-	-	...	...
Labour & Consumer Services	...	...	...	...	...	...	-	-
Lands, Parks & Housing	-	5	-	-	...	-	...	...
Municipal Affairs	16	22	39	39	-	-	-	-
Postsecondary Education	...	...	...	...	-	15	...	...
Provincial Secretary & Government Services	870	860	1,019	682	443	357	-	-
Science Council of B.C.	5,840	4,209	3,890	3,450	3,800	3,800	4,156	4,100
Social Services & Housing	...	...	...	...	...	...	300*	300*
Tourism	-	-	-	-	-	-	...	...
Tourism, Recreation & Culture	...	...	...	...	...	...	322	245
Transportation & Highways	54	48	40	55	61	55	125	115
Universities, Science & Communications	1,033	1,108	1,110	550	...	...	...	...
Total	**25,458**	**23,936**	**22,563**	**21,199**	**26,252**	**26,632**	**33,468**	**38,985**

TABLE 6. Ministerial Personnel Engaged in Scientific Activities, by Activity and Category, 1981-82 to 1988-89

Activity and category	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87[r]	1987-88	1988-89[e]
	(person-years)							
Research & development:								
Scientific & professional	154	166	148	127	124	122	123	117
Technical	154	141	121	113	99	90	82	81
Other	45	42	41	41	47	38	29	28
Sub-total	353	349	309	281	270	250	234	226
Related scientific activities:								
Scientific & professional	458	430	368	324	393	452	448	431
Technical	585	522	439	348	358	329	329	283
Other	269	256	224	188	210	211	197	180
Sub-total	1,312	1,208	1,031	860	961	992	974	894
Administration of extramural programs:								
Scientific & professional	...	...	...	...	...	...	19	19
Technical	...	...	...	...	...	...	9	10
Other	...	...	...	...	...	...	11	10
Sub-total	...	...	...	...	...	...	39	39
All activities:								
Scientific & professional	612	596	516	451	517	574	590	567
Technical	739	663	560	461	457	419	420	374
Other	314	298	265	229	257	249	237	218
Total	**1,665**	**1,557**	**1,341**	**1,141**	**1,231**	**1,242**	**1,247**	**1,159**

NOTE: Although 1987-88 is the first year that person-years devoted to the administration of extramural programs are being shown separately, these personnel have been previously included, in most cases, under the activity being administered.

TABLE 7. Total Expenditures, by Ministry or Agency and Sources of Funds, 1987-88

Ministry or agency	Ministerial budget	Transfers from other ministries	Transfers from federal government	From trust funds	From other sources	Total
	($'000)					
Advanced Education & Job Training	3,984	-	1,024	-	-	5,008
Agriculture & Fisheries	4,250	-	396	-	-	4,646
Attorney General	1,160	-	373	-	-	1,533
Economic Development	8,085	215	475	-	-	8,775
Education	3,499	-	-	-	-	3,499
Energy, Mines & Petroleum Resources	9,719	-	877	-	-	10,596
Environment & Parks	26,970	-	-	-	671	27,641
Finance & Corporate Affairs	381	-	-	-	-	381
Forests & Lands	27,703	40	2,381	-	-	30,124
Health	1,314	-	-	-	50[1]	1,364
Health Care Research Foundation	-	-	-	-	4,970[1]	4,970
Labour & Consumer Services	175	-	-	-	-	175
Municipal Affairs	749	-	-	-	-	749
Provincial Secretary & Government Services	2,256	-	-	-	-	2,256
Science Council of B.C.	-	3,800[2]	135	100	121	4,156
Social Services & Housing	855	-	-	-	-	855
Tourism, Recreation & Culture	5,001	-	636	-	600	6,237
Transportation & Highways	234	-	-	-	-	234
Total	**96,335**	**4,055**	**6,297**	**100**	**6,412**	**113,199**

1 Transferred from the B.C. Lotteries Fund.
2 Transferred from the Ministry of Advanced Education & Job Training.

TABLE 8. Total Expenditures, by Activity and Performer, 1987-88

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Research & development:							
Current expenditures:							
In-house	13,223	...	...	...	...	...	13,223
Contracts	429	621	727	-	-	2,955	4,732
Grants	-	4,676	6,054	341	1,599	70	12,740
Research fellowships	-	193	915	-	-	-	1,108
Administration of extramural R&D programs	1,056	...	...	...	...	...	1,056
Sub-total	14,708	5,490	7,696	341	1,599	3,025	32,859
Capital expenditures	609	...	...	...	...	...	609
Related scientific activities:							
Current expenditures	59,148	12,865	1,518	88	325	1,040	74,984
Administration of extramural RSA programs	775	...	...	...	...	...	775
Sub-total	59,923	12,865	1,518	88	325	1,040	75,759
Capital expenditures	3,972	...	...	...	...	...	3,972
Total	**79,212**	**18,355**	**9,214**	**429**	**1,924**	**4,065**	**113,199**

1 Includes only annual funding by Provincial Government.

TABLE 9. Total Expenditures, by Ministry or Agency and Performer, 1987-88

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	831	972	2,159	-	1,000	46	5,008
Agriculture & Fisheries	3,326	965	355	-	-	-	4,646
Attorney General	979	110	-	-	-	444	1,533
Economic Development	7,350	1,170	85	-	-	170	8,775
Education	1,513	1,986	-	-	-	-	3,499
Energy, Mines & Petroleum Resources	9,856	580	-	-	-	160	10,596
Environment & Parks	21,123	6,393	95	-	-	30	27,641
Finance & Corporate Affairs	381	-	-	-	-	-	381
Forests & Lands	22,917	2,859	694	-	724	2,930	30,124
Health	976	50	50	88	200	-	1,364
Health Care Research Foundation	189	40	4,400	341	-	-	4,970
Labour & Consumer Services	175	-	-	-	-	-	175
Municipal Affairs	673	76	-	-	-	-	749
Provincial Secretary & Government Services	2,249	7	-	-	-	-	2,256
Science Council of B.C.	523	2,257	1,376	-	-	-	4,156
Social Services & Housing	850	-	-	-	-	5	855
Tourism, Recreation & Culture	5,167	880	-	-	-	190	6,237
Transportation & Highways	134	10	-	-	-	90	234
Total	**79,212**	**18,355**	**9,214**	**429**	**1,924**	**4,065**	**113,199**

1 Includes only annual funding by Provincial Government.

TABLE 10. Total Expenditures, by Ministry or Agency and Activity, 1987-88

Ministry or agency	Research & development			Related scientific activities			Total
	Current	AEP[1]	Capital	Current	AEP[1]	Capital	
	($000)						
Advanced Education & Job Training	2,755	120	-	2,003	130	-	5,008
Agriculture & Fisheries	1,217	71	25	3,313	20	-	4,646
Attorney General	-	-	-	1,533	-	-	1,533
Economic Development	50	-	-	7,655	70	1,000	8,775
Education	-	-	-	3,324	175	-	3,499
Energy, Mines & Petroleum Resources	-	-	-	10,407	-	189	10,596
Environment & Parks	1,797	-	23	23,551	280	1,990	27,641
Finance & Corporate Affairs	-	-	-	357	-	24	381
Forests & Parks	16,814	63	561	12,409	-	277	30,124
Health	99	-	-	1,265	-	-	1,364
Health Care Research Foundation	4,781	189	-	-	-	-	4,970
Labour & Consumer Services	-	-	-	175	-	-	175
Municipal Affairs	-	-	-	749	-	-	749
Provincial Secretary & Government Services	-	-	-	1,764	-	492	2,256
Science Council of B.C.	3,633	523	-	-	-	-	4,156
Social Services & Housing	300	-	-	555	-	-	855
Tourism, Recreation & Culture	232	90	-	5,815	100	-	6,237
Transportation & Highways	125	-	-	109	-	-	234
Total	31,803	1,056	609	74,984	775	3,972	113,199

1 Administration of extramural programs

TABLE 11. Total Expenditures on R&D, by Ministry or Agency and Performer, 1987-88

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	120	970	910	-	875	-	2,875
Agriculture & Fisheries	573	457	283	-	-	-	1,313
Attorney General	-	-	-	-	-	-	-
Economic Development	50	-	-	-	-	-	50
Education	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment & Parks	1,689	83	33	-	-	15	1,820
Finance & Corporate Affairs	-	-	-	-	-	-	-
Forests & Lands	11,607	1,483	694	-	724	2,930	17,438
Health	49	50	-	-	-	-	99
Health Care Research Foundation	189	40	4,400	341	-	-	4,970
Labour & Consumer Services	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-	-
Social Services & Housing	300	-	-	-	-	-	300
Science Council of B.C.	523	2,257	1,376	-	-	-	4,156
Tourism, Recreation & Culture	102	140	-	-	-	80	322
Transportation & Highways	115	10	-	-	-	-	125
Total	**15,317**	**5,490**	**7,696**	**341**	**1,599**	**3,025**	**33,468**

1 Includes only annual funding by Provincial Government.

TABLE 12. Detail of Intramural Expenditures, by Ministry or Agency, 1987-88

Ministry or agency	Current expenditures		Capital expenditures	Total
	Personnel costs	Other costs		
	($'000)			
Advanced Education & Job Training	687	144	-	831
Agriculture & Fisheries	2,097	1,204	25	3,326
Attorney General	814	165	-	979
Economic Development	4,350	2,000	1,000	7,350
Education	1,232	281	-	1,513
Energy, Mines & Petroleum Resources	4,668	4,999	189	9,856
Environment & Parks	9,398	9,712	2,013	21,123
Finance & Corporate Affairs	349	8	24	381
Forests & Parks	13,677	8,402	838	22,917
Health	652	324	-	976
Health Care Research Foundation	-	189	-	189
Labour & Consumer Services	165	10	-	175
Municipal Affairs	641	32	-	673
Provincial Secretary & Government Services	1,419	338	492	2,249
Science Council of B.C.	317	206	-	523
Social Services & Housing	515	335	-	850
Tourism, Recreation & Culture	3,223	1,944	-	5,167
Transportation & Highways	99	35	-	134
Total	**44,303**	**30,328**	**4,581**	**79,212**

TABLE 13. Ministerial Personnel Engaged in Scientific Activities, by Ministry or Agency, Activity and Category, 1987-88

Ministry or agency	Research & development				Related scientific activities			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training ...	-	-	-	-	10	-	4	14
Agriculture & Fisheries	2	1	-	3	40	12	4	56
Attorney General	-	-	-	-	15	-	6	21
Economic Development	1	-	-	1	73	6	26	105
Education	-	-	-	-	18	-	9	27
Energy, Mines & Petroleum Resources .	-	-	-	-	74	12	26	112
Environment & Parks	23	10	2	35	69	162	41	272
Finance & Corporate Affairs	-	-	-	-	7	-	1	8
Forests & Lands	90	70	27	187	63	99	32	194
Health .....[1]	1	-	-	1	13	-	7	20
Health Care Research Foundation[1]	-	-	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	3	-	3	6
Municipal Affairs	-	-	-	-	6	-	6	12
Provincial Secretary & Government Services	-	-	-	-	18	8	16	42
Science Council of B.C.	-	-	-	-	-	-	-	-
Social Services & Housing[1]	3	-	-	3	8	-	3	11
Tourism, Recreation & Culture	1	-	-	1	31	30	13	74
Transportation & Highways	2	1	-	3	-	-	-	-
Total	**123**	**82**	**29**	**234**	**448**	**329**	**197**	**974**

1 Administrative personnel included with Science Council of B.C.

TABLE 13. Ministerial Personnel Engaged in Scientific Activities, by Ministry or Agency, Activity and Category, 1987-88

Ministry or agency	Administration of extramural programs				Total			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	3	1	2	6	13	1	6	20
Agriculture & Fisheries	2	-	-	2	44	13	4	61
Attorney General	-	-	-	-	15	-	6	21
Economic Development	2	-	-	2	76	6	26	108
Education	4	-	-	4	22	-	9	31
Energy, Mines & Petroleum Resources	-	-	-	-	74	12	26	112
Environment & Parks	1	6	1	8	93	178	44	315
Finance & Corporate Affairs	-	-	-	-	7	-	1	8
Forests & Lands	-	-	2	2	153	169	61	383
Health	-	-	-	-	14	-	7	21
Health Care Research Foundation[1]	-	-	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	3	-	3	6
Municipal Affairs	-	-	-	-	6	-	6	12
Provincial Secretary & Government Services	-	-	-	-	18	8	16	42
Science Council of B.C.	4	-	4	8	4	-	4	8
Social Services & Housing	-	-	-	-	11	-	3	14
Tourism, Recreation & Culture	3	2	2	7	35	32	15	82
Transportation & Highways	-	-	-	-	2	1	-	3
Total	19	9	11	39	590	420	237	1,247

1 Administrative personnel included with Science Council of B.C.

TABLE 14. Objectives of Expenditures, by Ministry or Agency, 1987-88

Ministry or agency	Advancement of science	Communications	Energy & fuels				
			Conservation	Fossil fuels	Hydro electric energy	Renewable resources	Other
	($'000)						
Advanced Education & Job Training	1,217	535	-	-	-	-	-
Agriculture & Fisheries	-	-	-	-	-	-	-
Attorney General	-	-	-	-	-	-	-
Economic Development	50	50	-	375	300	-	-
Education	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	2,599	825	-	-
Environment & Parks	250	-	-	-	-	-	-
Finance & Corporate Affairs	-	12	-	12	-	-	-
Forests & Lands	-	-	-	-	-	-	-
Health	-	-	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services	-	7	-	-	-	-	-
Science Council of B.C.	-	707	-	47	114	114	-
Social Services & Housing	-	-	-	-	-	-	-
Tourism, Recreation & Culture	5	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-	-
Total	**1,522**	**1,311**	**-**	**3,033**	**1,239**	**114**	**-**

TABLE 14. Objectives of Expenditures, by Ministry or Agency, 1987-88 - Continued

Ministry or agency	Environmental issues				Health
	Air	Land	Water	Other	
	($'000)				
Advanced Education & Job Training	-	-	-	235	-
Agriculture & Fisheries	-	-	-	-	-
Attorney General	-	-	-	-	-
Economic Development	-	-	-	-	100
Education	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	40	-	-	-
Environment & Parks	3,099	1,311	2,407	2,569	120
Finance & Corporate Affairs	-	-	-	-	49
Forests & Lands	-	-	-	288	-
Health	-	-	-	-	1,364
Health Care Research Foundation	-	-	-	-	4,970
Labour & Consumer Services	-	-	-	-	-
Municipal Affairs	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-
Science Council of B.C.	-	-	-	-	-
Social Services & Housing[4]	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-
Transportation & Highways	-	-	-	-	-
Total	**3,099**	**1,351**	**2,407**	**3,092**	**6,603**

TABLE 14. Objectives of Expenditures, by Ministry or Agency, 1987-88 - Continued

Ministry or agency	Industrial & economic development					
	Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
	($'000)					
Advanced Education & Job Training ...	-	410	-	970	-	922
Agriculture & Fisheries	3,540	1,106	-	-	-	-
Attorney General	-	-	-	-	-	-
Economic Development	-	200	1,200	3,800	600	-
Education	-	-	-	-	-	-
Energy, Mines & Petroleum Resources .	-	-	-	-	7,132	-
Environment & Parks	226	697	1,694	-	-	-
Finance & Corporate Affairs	12	-	25	25	-	173
Forests & Lands	-	-	29,836	-	-	-
Health	-	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-
Science Council of B.C.	457	773	813	391	175	565
Social Services & Housing	-	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
**Total ..... **	**4,235**	**3,186**	**33,568**	**5,186**	**7,907**	**1,660**

TABLE 14. Objectives of Expenditures, by Ministry or Agency, 1987-88 - Concluded

Ministry or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
	($'000)								
Advanced Education & Job Training	-	660	59	-	-	-	-	-	5,008
Agriculture& Fisheries	-	-	-	-	-	-	-	-	4,646
Attorney General	-	-	-	-	1,533	-	-	-	1,533
Economic Development	900	100	600	350	-	150	-	-	8,775
Education	-	3,499	-	-	-	-	-	-	3,499
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-	-	10,596
Environment & Parks	525	-	-	-	5	2	1,925	12,811	27,641
Finance & Corporate Affairs	-	24	25	-	-	24	-	-	381
Forests & Lands	-	-	-	-	-	-	-	-	30,124
Health	-	-	-	-	-	-	-	-	1,364
Health Care Research Foundation	-	-	-	-	-	-	-	-	4,970
Labour & Consumer Services	-	-	-	-	-	-	-	-	175
Municipal Affairs	-	-	175	-	-	-	-	-	749
Provincial Secretary & Government Services	-	-	-	414	-	-	-	335	2,256
Science Council of B.C.	2,249	-	-	-	-	-	-	-	4,156
Social Services & Housing[6]	-	-	-	-	-	-	-	-	855
Tourism, Recreation & Culture	-	-	700	155	-	-	-	-	6,237
Transportation & Highways	5,494	-	-	5	533	-	-	200	234
	-	-	-	-	-	234	-	-	
Total	9,168	4,283	1,559	924	2,071	410	1,925	13,346	113,199

TABLE 15. Objectives of Science Expenditures, by Activity, 1987-88

Objective	Intramural		Extramural		Total
	Research & development	Related scientific activities	Research & development	Related scientific activities	
	($'000)				
Advancement of science	170	530	375	447	1,522
Communications	89	62	1,153	7	1,311
Energy & fuels:					
Fossil fuels	7	2,757	40	229	3,033
Hydro electric energy	14	960	100	165	1,239
Renewable resources	14	-	100	-	114
Environmental issues:					
Air	350	2,682	-	67	3,099
Land	8	1,339	4	-	1,351
Water	148	2,226	14	19	2,407
Other	264	2,477	325	26	3,092
Health	238	1,196	4,831	338	6,603
Industrial & economic development:					
Agriculture	144	2,837	769	485	4,235
Fisheries	1,033	586	1,472	95	3,186
Forestry	11,690	12,183	6,476	3,219	33,568
Manufacturing	49	3,425	1,312	400	5,186
Minerals	22	7,111	153	621	7,907
Other	71	173	724	692	1,660
Social development:					
Culture, sport & recreation	-	7,928	-	1,240	9,168
Education	-	2,016	-	2,267	4,283
Human resources	250	1,307	-	2	1,559
Urban & regional studies	50	743	-	131	924
Other	102	1,275	140	554	2,071
Transportation	115	195	10	90	410
Wildlife	489	1,381	53	2	1,925
Other	-	8,506	100	4,740	13,346
Total	15,317	63,895	18,151	15,836	113,199

TABLE 16. Total Expenditures, by Activity and Performer, 1988-89

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Research & development:							
Current expenditures:							
In-house	13,849	...	...	...	...	...	13,849
Contracts	735	880	680	-	-	3,613	5,908
Grants	-	4,067	6,062	1,500	1,625	-	13,254
Research fellowships	-	250	2,510	-	-	-	2,760
Administration of extramural R&D programs	1,155	-	-	-	-	-	1,155
Sub-total	15,739	5,197	9,252	1,500	1,625	3,613	36,926
Capital expenditures	2,059	...	...	...	...	...	2,059
Related scientific activities:							
Current expenditures	63,515	17,135	1,451	-	525	1,526	84,152
Administration of extramural RSA programs	799	...	...	...	...	...	799
Sub-total	64,314	17,135	1,451	-	525	1,526	84,951
Capital expenditures	3,972	...	...	...	...	...	3,972
Total	**86,084**	**22,332**	**10,703**	**1,500**	**2,150**	**5,139**	**127,908**

1 Includes only annual funding by Provincial Government.

Table 17. Total Expenditures, by Ministry or Agency and Performer, 1988-89

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	942	1.036	3,370	1,000	1,000	25	7,373
Agriculture & Fisheries	3,440	1,281	318	-	-	-	5,039
Attorney General	840	20	-	-	-	450	1,310
Economic Development	7,350	1,170	85	-	-	170	8,775
Education	1,534	3,136	-	-	-	-	4,670
Energy, Mines & Petroleum Resources	11,479	538	-	-	-	881	12,898
Environment & Parks	17,517	9,395	30	-	-	15	26.957
Finance & Corporate Affairs	443	-	-	-	-	-	443
Forests & Lands	29,997	3,041	650	-	750	3,598	38,036
Health	1,194	-	-	-	-	-	1,194
Health Care Research Foundation	200	-	4,500	500	-	-	5,200
Labour & Consumer Services	575	-	-	-	400	-	975
Municipal Affairs	636	95	-	-	-	-	731
Provincial Secretary & Government Services	3,027	-	-	-	-	-	3,027
Science Council of B.C.	600	1,750	1,750	-	-	-	4,100
Social Services & Housing	900	-	-	-	-	-	900
Tourism, Recreation & Culture	5,230	740	-	-	-	-	5,970
Transportation & Highways	180	130	-	-	-	-	310
Total	**86,084**	**22,332**	**10,703**	**1,500**	**2,150**	**5,139**	**127,908**

1 Includes only annual funding by Provincial Government.

TABLE 18. Total Expenditures, by Ministry or Agency and Activity, 1988-89*

Ministry or agency	Research & development			Related scientific activities			Total
	Current	AEP[1]	Capital	Current	AEP[1]	Capital	
	($000)						
Advanced Education & Job Training	4,945	150	-	2,228	50	-	7,373
Agriculture & Fisheries	1,465	52	-	3,502	20	-	5,039
Attorney General	-	-	-	1,310	-	-	1,310
Economic Development	50	-	-	7,655	70	1,000	8,775
Education	-	-	-	4,488	182	-	4,670
Energy, Mines & Petroleum Resources	-	-	-	12,713	8	177	12,898
Environment & Parks	1,726	-	15	23,596	300	1,320	26,957
Finance & Corporate Affairs	-	-	-	435	-	8	443
Forests & Lands	18,467	63	2,044	16,195	-	1,267	38,036
Health	48	-	-	1,146	-	-	1,194
Health Care Research Foundation	5,000	200	-	-	-	-	5,200
Labour & Consumer Services	-	-	-	725	50	200	975
Municipal Affairs	-	-	-	731	-	-	731
Provincial Secretary & Government Services	-	-	-	3,027	-	-	3,027
Science Council of B.C.	3,500	600	-	-	-	-	4,100
Social Services & Housing	300	-	-	600	-	-	900
Tourism, Recreation & Culture	155	90	-	5,620	105	-	5,970
Transportation & Highways	115	-	-	181	14	-	310
Total	35,771	1,155	2,059	84,152	799	3,972	127,908

1 Administration of extramural programs

TABLE 19. Total Expenditures on R&D, by Ministry or Agency and Performer, 1988-89*

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	150	1,000	2,070	1,000	875	-	5,095
Agriculture & Fisheries	648	617	252	-	-	-	1,517
Attorney General	-	-	-	-	-	-	-
Economic Development	50	-	-	-	-	-	50
Education	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment & Parks	1,516	180	30	-	-	15	1,741
Finance & Corporate Affairs	-	-	-	-	-	-	-
Forests & Lands	14,076	1,500	650	-	750	3,598	20,574
Health	48	-	-	-	-	-	48
Health Care Research Foundation	200	-	4,500	500	-	-	5,200
Labour & Consumer Services	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-	-
Science Council of B.C.	600	1,750	1,750	-	-	-	4,100
Social Services & Housing*	300	-	-	-	-	-	300
Tourism, Recreation & Culture	105	140	-	-	-	-	245
Transportation & Highways	105	10	-	-	-	-	115
Total	**17,798**	**5,197**	**9,252**	**1,500**	**1,625**	**3,613**	**38,985**

1 Includes only annual funding by Provincial Government.

TABLE 20. Ministerial Personnel Engaged in Scientific Activities, by Ministry or Agency, Activity and Category, 1988-89

Ministry or agency	Research & development				Related scientific activities			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	-	-	-	-	11	-	4	15
Agriculture & Fisheries	2	1	-	3	39	11	4	54
Attorney General	-	-	-	-	13	-	5	18
Economic Development	1	-	-	1	73	6	26	105
Education	-	-	-	-	18	-	9	27
Energy, Mines & Petroleum Resources	-	-	-	-	73	11	26	110
Environment & Parks	21	8	1	30	50	137	28	215
Finance & Corporate Affairs	-	-	-	-	8	-	1	9
Forests & Lands	87	71	27	185	65	80	27	172
Health	1	-	-	1	15	-	7	22
Health Care Research Foundation[1]	-	-	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	4	-	3	7
Municipal Affairs	-	-	-	-	6	-	6	12
Provincial Secretary & Government Services	-	-	-	-	17	8	16	41
Science Council of B.C.	-	-	-	-	-	-	-	-
Social Services Housing	3	-	-	3	8	-	3	11
Tourism, Recreation & Culture	1	-	-	1	31	30	13	74
Transportation & Highways	1	1	-	2	-	-	2	2
Total	117	81	28	226	431	283	180	894

1 Administrative personnel included with Science Council of B.C.

TABLE 20. Ministerial Personnel Engaged in Scientific Activities, by Ministry or Agency, Activity and Category, 1988-89

Ministry or agency	Administration of extramural programs				Total			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	1	2	1	4	12	2	5	19
Agriculture & Fisheries	2	-	-	2	43	12	4	59
Attorney General	-	-	-	-	13	-	5	18
Economic Development	2	-	-	2	76	6	26	108
Education	4	-	-	4	22	-	9	31
Energy, Mines & Petroleum Resources	-	-	-	-	73	11	26	110
Environment & Parks	1	6	1	8	72	151	30	253
Finance & Corporate Affairs	-	-	-	-	8	-	1	9
Forests & Lands	-	-	2	2	152	151	56	359
Health	-	-	-	-	16	-	7	23
Health Care Research Foundation[1]	-	-	-	-	-	-	-	-
Labour & Consumer Services	1	-	-	1	5	-	3	8
Municipal Affairs	-	-	-	-	6	-	6	12
Provincial Secretary & Government Services	-	-	-	-	17	8	16	41
Science Council of B.C.	5	-	4	9	5	-	4	9
Social Services & Housing	-	-	-	-	11	-	3	14
Tourism, Recreation & Culture	3	2	2	7	35	32	15	82
Transportation & Highways	-	-	-	-	1	1	2	4
Total	**19**	**10**	**10**	**39**	**567**	**374**	**218**	**1,159**

1 Administrative personnel included with Science Council of B.C.

TABLE 21. Objectives of Expenditures, by Ministry or Agency, 1988-89[a]

Ministry or agency	Advancement of science	Communications	Energy & fuels				
			Conservation	Fossil fuels	Hydro electric energy	Renewable resources	Other
	($'000)						
Advanced Education & Job Training	1,615	1,260	-	-	-	-	-
Agriculture & Fisheries	-	-	-	-	-	-	-
Attorney General	-	-	-	-	-	-	-
Economic Development	50	50	-	375	300	-	-
Education	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	2,625	875	-	-
Environment & Parks	240	-	-	-	-	-	-
Finance & Corporate Affairs	-	17	-	13	-	-	-
Forests & Lands	-	-	-	-	-	-	-
Health	-	-	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-	-
Science Council of B.C.	-	697	-	59	105	105	-
Social Services & Housing[a]	-	-	-	-	-	-	-
Tourism, Recreation & Culture	5	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-	-
Total	**1,910**	**2,024**	**-**	**3,072**	**1,280**	**105**	**-**

TABLE 21. Objectives of Expenditures, by Ministry or Agency, 1988-89[a] - Continued

Ministry or agency	Environmental Issues				Health
	Air	Land	Water	Other	
	($'000)				
Advanced Education & Job Training	-	-	-	245	1,000
Agriculture & Fisheries	-	-	-	-	-
Attorney General	-	-	-	-	-
Economic Development	-	-	-	-	100
Education	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	860	-	-
Environment & Parks	1,837	815	987	3,075	-
Finance & Corporate Affairs	-	-	-	-	52
Forests & Lands	-	-	-	397	-
Health	-	-	-	-	1,194
Health Care Research Foundation	-	-	-	-	5,200
Labour & Consumer Services	-	-	-	-	800
Municipal Affairs	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-
Science Council of B.C.	-	-	-	-	-
Social Services & Housing[a]	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-
Transportation & Highways	-	-	-	-	-
Total	**1,837**	**815**	**1,847**	**3,717**	**8,346**

TABLE 21. Objectives of Expenditures, by Ministry or Agency, 1988-89[a] - Continued

Ministry or agency	Industrial & economic development					
	Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
	($'000)					
Advanced Education & Job Training ...	-	400	-	1,000	-	1,060
Agriculture & Fisheries	3,540	1,499	-	-	-	-
Attorney General	-	-	-	-	-	-
Economic Development	-	200	1,200	3,800	600	-
Education	-	-	-	-	-	-
Energy, Mines & Petroleum Resources .	-	-	-	-	8,538	-
Environment & Parks	-	650	2,675	-	-	-
Finance & Corporate Affairs	13	-	26	26	-	218
Forests & Lands	-	-	37,639	-	-	-
Health	-	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-
Science Council of B.C.	451	763	804	386	172	558
Social Services & Housing[b]	-	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	**4,004**	**3,512**	**42,344**	**5,212**	**9,310**	**1,836**

TABLE 21. Objectives of Expenditures, by Ministry or Agency, 1988-89[e] - Concluded

Ministry or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
	($'000)								
Advanced Education & Job Training	-	704	89	-	-	-	-	-	7,373
Agriculture & Fisheries	-	-	-	-	-	-	-	-	5,039
Attorney General	-	-	-	-	1,310	-	-	-	1,310
Economic Development	900	100	600	350	-	150	-	-	8,775
Education	-	4,670	-	-	-	-	-	-	4,670
Energy, Mines & Petroleum Resources ..	-	-	-	-	-	-	-	-	12,898
Environment & Parks	697	-	-	-	-	-	1,960	14,021	26,957
Finance & Corporate Affairs	-	26	26	-	-	26	-	-	443
Forests & Lands	-	-	-	-	-	-	-	-	38,036
Health	-	-	-	-	-	-	-	-	1,194
Health Care Research Foundation	-	-	-	-	-	-	-	-	5,200
Labour & Consumer Services	-	-	175	-	-	-	-	-	975
Municipal Affairs	-	-	-	396	-	-	-	335	731
Provincial Secretary & Government Services	3,027	-	-	-	-	-	-	-	3,027
Science Council of B.C.	-	-	-	-	-	-	-	-	4,100
Social Services & Housing	-	-	725	175	-	-	-	-	900
Tourism, Recreation & Culture	5,425	-	-	5	535	-	-	-	5,970
Transportation & Highways	-	-	-	-	-	310	-	-	310
Total	**10,049**	**5,500**	**1,615**	**926**	**1,845**	**486**	**1,960**	**14,356**	**127,908**

TABLE 22. Objectives of Expenditures, by Activity, 1988-89[a]

Objective	Intramural		Extramural		Total
	Research & development	Related scientific activities	Research & development	Related scientific activities	
	($'000)				
Advancement of science	200	605	810	295	1,910
Communications	102	67	1,855	-	2,024
Energy & fuels:					
Fossil fuels	9	2,868	50	145	3,072
Hydro electric energy	15	1,045	90	130	1,280
Renewable resources	15	-	90	-	105
Environmental issues:					
Air	334	1,503	-	-	1,837
Land	5	810	-	-	815
Water	5	1,042	-	800	1,847
Other	247	2,835	540	95	3,717
Health	248	1,698	6,000	400	8,346
Industrial & economic development:					
Agriculture	103	2,662	754	485	4,004
Fisheries	1,173	543	1,551	245	3,512
Forestry	14,174	16,770	7,039	4,361	42,344
Manufacturing	56	3,426	1,330	400	5,212
Minerals	25	8,519	147	619	9,310
Other	82	218	706	830	1,836
Social development:					
Culture, sport & recreation	-	8,949	-	1,100	10,049
Education	-	2,039	-	3,461	5,500
Human resources	250	1,329	-	36	1,615
Urban & regional studies	50	731	-	145	926
Other	105	1,130	140	470	1,845
Transportation	105	251	10	120	486
Wildlife	495	1,390	75	-	1,960
Other	-	7,856	-	6,500	14,356
Total	17,798	68,286	21,187	20,637	127,908

Natural Sciences

TABLE 23. Total Expenditures in the Natural Sciences, by Activity, 1981-82 to 1988-89

Activity	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Research & development:								
Current Expenditures:								
In-house	12,096	12,297	11,197	10,334	12,207	13,337	13,012	13,636
Contracts	2,139	1,684	1,557	2,594	2,806	3,536	4,332	5,568
Grants	9,288	7,679	7,591	5,830	8,813	6,993	12,670	13,254
Research fellowships	859	1,070	1,042	1,218	1,251	1,395	1,108	2,760
Administration of extramural R&D programs	...	...	...	...	...	...	966	1,065
Sub-total	24,382	22,730	21,387	19,976	25,077	25,261	32,088	36,283
Capital Expenditures	296	444	193	204	412	845	609	2,059
Related scientific activities:								
Current Expenditures:								
Education support	233	166	172	40	55	17	382	210
Technical surveys	23,464	25,161	24,089	23,406	25,609	33,313	40,512	45,619
Information services	2,685	3,441	3,058	2,267	2,327	2,737	3,357	3,522
Special services & studies	4,434	4,181	6,228	2,279	4,322	4,109	4,450	5,509
Museum services	1,015	891	517	1,643	2,205	2,045	2,537	2,593
Administration of extramural RSA programs	...	...	...	...	...	...	335	378
Sub-total	31,831	33,840	34,064	29,635	34,518	42,221	51,573	57,831
Capital expenditures	535	383	170	291	335	1,155	2,456	2,764
Total	**57,044**	**57,397**	**55,814**	**50,106**	**60,342**	**69,482**	**86,726**	**98,937**

TABLE 24. Total Expenditures in the Natural Sciences, by Ministry or Agency, 1981-82 to 1988-89

Ministry or agency	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Advanced Education & Job Training	...	...	...	...	...	...	4,049	6,270
Agriculture & Fisheries	...	...	...	...	...	...	4,646	5,039
Agriculture & Food	1,785	1,760	1,996	1,717	2,945	3,301	...	...
Energy, Mines & Petroleum Resources	4,845	4,637	7,214	2,355	3,830	6,358	8,096	10,248
Environment	19,304	20,456	17,546	18,577	18,680	22,591	...	...
Environment & Parks	...	...	...	...	...	...	27,371	26,689
Forests	18,712	19,269	18,416	17,164	21,018	24,188	...	...
Forests & Lands	...	...	...	...	...	...	30,124	38,036
Health	65	25	146	85	245	100	-	-
Health Care Research Foundation	3,033	3,372	3,532	3,611	3,578	3,574	4,970	5,200
International Trade, Science & Investment	...	...	...	...	3,705	2,494	...	...
Lands, Parks & Housing	12	321	298	362	...	222	...	...
Municipal Affairs	...	...	...	...	...	355	335	335
Postsecondary Education	...	...	...	...	-	15	...	...
Provincial Secretary & Government Services	1,640	1,390	950	1,710	2,366	2,294	-	-
Science Council of B.C.	5,840	4,209	4,002	3,450	3,800	3,800	4,156	4,100
Tourism, Recreation & Culture	...	...	...	...	...	...	2,844	2,900
Transportation & Highways	151	173	150	175	175	190	135	120
Universities, Science & Communications	1,657	1,785	1,564	900	...	...	...	...
Total	**57,044**	**57,397**	**55,814**	**50,106**	**60,342**	**69,482**	**86,726**	**98,937**

TABLE 25. Total Expenditures in the Natural Sciences, by Performer, 1981-82 to 1988-89

Performer	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Intramural	40,678	43,187	38,605	37,069	44,066	50,250	58,823	63,960
Industry	6,695	5,855	9,057	5,048	4,814	8,260	13,874	16,915
Universities	6,138	5,270	5,204	5,306	5,947	6,402	8,844	10,318
Hospitals & health organizations	124	203	290	162	2,260[2]	403	341	1,500[3]
B.C. Research Council[1]	1,914	1,789	1,586	944	1,015	1,290	1,724	1,750
Other	1,495	1,093	1,072	1,577	2,240	2,877	3,120	4,494
Total	57,044	57,397	55,814	50,106	60,342	69,482	86,726	98,937

1 Includes only annual funding by Provincial Government.
2 Includes a $2.0 million grant to the Biomedical Processing Centre.
3 Includes a $1.0 million grant to the Biomedical Processing Centre.

TABLE 26. Total Expenditures on R&D in the Natural Sciences, by Performer, 1981-82 to 1988-89

Performer	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Intramural	13,028	13,265	11,863	10,817	12,968	14,300	14,816	17,295
Industry	2,938	2,299	2,238	2,016	2,254	2,223	5,300	5,057
Universities	6,127	5,270	5,204	5,303	5,397	5,699	7,696	9,252
Hospitals & health organizations	124	203	290	162	2,260[2]	403	341	1,500[3]
B.C. Research Council[1]	1,494	1,227	1,147	594	515	790	1,599	1,625
Other	967	910	838	1,288	2,095	2,691	2,945	3,613
Total	24,678	23,174	21,580	20,180	25,489	26,186	32,697	38,342

1 Includes only annual funding by Provincial Government.
2 Includes a $2.0 million grant to the Biomedical Processing Centre.
3 Includes a $1.0 million grant to the Biomedical Processing Centre.

TABLE 27. Total Expenditures on R&D in the Natural Sciences, by Ministry or Agency, 1981-82 to 1988-89

Ministry or agency	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Advanced Education & Job Training	...	...	...	...	...	...	2,875	5,095
Agriculture & Fisheries	...	...	...	...	...	...	1,313	1,517
Agriculture & Food	831	577	695	345	150	486	...	...
Energy, Mines & Petroleum Resources	1,370	1,290	1,393	866	1,003	200	-	-
Environment	2,251	2,284	1,809	1,752	2,087	2,069	...	...
Environment & Parks	...	...	...	...	...	...	1,820	1,741
Forests	9,841	9,866	8,688	9,481	11,915	14,563	...	...
Forests & Lands	...	...	...	...	...	...	17,438	20,574
Health	5	5	103	70	225	95	-	-
Health Care Research Foundation	3,033	3,372	3,532	3,611	3,578	3,574	4,970	5,200
International Trade, Science & Investment	...	...	...	...	2,676	1,249	...	...
Lands, Parks & Housing	-	5	-	-	...	-	...	...
Municipal Affairs	...	...	...	...	...	-	-	-
Postsecondary Education	...	...	...	...	-	15	...	...
Provincial Secretary & Government Services	420	410	320	-	-	-	-	-
Science Council of B.C.	5,840	4,209	3,890	3,450	3,800	3,800	4,156	4,100
Tourism, Recreation & Culture	...	...	...	...	...	...	-	-
Transportation & Highways	54	48	40	55	55	55	125	115
Universities, Science & Communications	1,033	1,108	1,110	550	...	...	...	...
Total	**24,678**	**23,174**	**21,580**	**20,180**	**25,489**	**26,106**	**32,697**	**38,342**

TABLE 28. Ministerial Personnel Engaged in Scientific Activities in the Natural Sciences, by Activity and Category, 1981-82 to 1988-89

Activity and category	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89*
	(person-years)							
Research & development:								
Scientific & professional	134	147	135	114	118	119	117	111
Technical	148	135	115	106	97	90	82	81
Other	42	40	40	40	42	38	29	28
Sub-total	324	322	290	260	257	247	228	220
Related scientific activities:								
Scientific & professional	222	203	198	167	204	217	231	212
Technical	506	444	396	302	309	304	304	257
Other	124	122	120	96	99	108	106	89
Sub-total	852	769	714	565	612	629	641	558
Administration of extramural programs:								
Scientific & professional	...	...	...	...	...	...	8	9
Technical	...	...	...	...	...	...	7	8
Other	...	...	...	...	...	...	9	8
Sub-total	...	...	...	...	...	...	24	25
Total science activities:								
Scientific & professional	356	350	333	281	322	336	356	332
Technical	654	579	511	408	406	394	393	346
Other	166	162	160	136	141	139	144	125
Total	1,176	1,091	1,004	825	869	876	893	803

NOTE: Although 1987-88 is the first year that person-years devoted to the administration of extramural programs are being shown separately, these personnel have been previously included, in most cases, with the activity being administered.

TABLE 29. Total Expenditures in the Natural Sciences, by Ministry or Agency and Sources of Funds, 1987-88

Ministry or agency	Ministerial budget	Transfers from other ministries	Transfers from federal government	From trust funds	From other sources	Total
	($'000)					
Advanced Education & Job Training	3,025	-	1,024	-	-	4,049
Agriculture & Fisheries	4,250	-	396	-	-	4,646
Energy, Mines & Petroleum Resources	7,219	-	877	-	-	8,096
Environment & Parks	26,700	-	-	-	671	27,371
Forests & Lands	27,703	40	2,381	-	-[1]	30,124
Health Care Research Foundation	-	-	-	-	4,970[1]	4,970
Municipal Affairs	335	-	-	-	-	335
Science Council of B.C.	-	3,800[2]	135	100	121	4,156
Tourism, Recreation & Culture	2,566	-	78	-	200	2,844
Transportation & Highways	135	-	-	-	-	135
Total	**71,933**	**3,840**	**4,891**	**100**	**5,962**	**86,726**

1 Transferred from the B.C. Lotteries Fund.
2 Transferred from the Ministry of Advanced Education & Job Training.

TABLE 30. Total Expenditures in the Natural Sciences, by Activity and Performer, 1987-88

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Research & development:							
Current expenditures:							
In-house	13,012	...	...	...	...	...	13,012
Contracts	229	431	727	-	-	2,945	4,332
Grants	-	4,676	6,054	341	1,599	-	12,670
Research fellowships	-	193	915	-	-	-	1,108
Administration of extramural R&D programs	966	...	...	...	...	...	966
Sub-total	14,207	5,300	7,696	341	1,599	2,945	32,088
Capital expenditures	609	...	...	...	...	...	609
Related scientific activities:							
Current expenditures:							
Education support	20	40	322	-	-	-	382
Technical surveys	32,068	8,179	111	-	-	154	40,512
Information services	2,414	120	698	-	125	-	3,357
Special services & studies	4,179	235	17	-	-	19	4,450
Museum services	2,535	-	-	-	-	2	2,537
Administration of extramural RSA programs	335	...	...	...	...	...	335
Sub-total	41,551	8,574	1,148	-	125	175	51,573
Capital expenditures	2,456	...	...	...	...	...	2,456
Total	**58,823**	**13,874**	**8,844**	**341**	**1,724**	**3,120**	**86,726**

1 Includes only annual funding by Provincial Government.

TABLE 31. Total Expenditures in the Natural Sciences, by Ministry or Agency and Performer, 1987-88

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	155	970	1924	-	1,000	-	4,049
Agriculture & Fisheries	3,326	965	355	-	-	-	4,646
Energy, Mines & Petroleum Resources	7,556	380	-	-	-	160	8,096
Environment & Parks	20,853	6,393	95	-	-	30	27,371
Forests & Lands	22,917	2,859	694	-	724	2,930	30,124
Health Care Research Foundation	189	40	4,400	341	-	-	4,970
Municipal Affairs	335	-	-	-	-	-	335
Science Council of B.C.	523	2,257	1,376	-	-	-	4,156
Tourism, Recreation & Culture	2,844	-	-	-	-	-	2,844
Transportation & Highways	125	10	-	-	-	-	135
Total	**58,823**	**13,874**	**8,844**	**341**	**1,724**	**3,120**	**86,726**

1 Includes only annual funding by Provincial Government.

TABLE 32. Total Expenditures in the Natural Sciences, by Ministry or Agency and Activity, 1987-88

Ministry or agency	Research and Development			Related scientific activities							Total
	Current	AEP[1]	Capital	Education support	Technical surveys	Information services	Special services & studies	Museum services	AEP[1]	Capital	
	($'000)										
Advanced Education & Job Training	2,755	120	-	322	-	817	-	-	35	-	4,049
Agriculture & Fisheries	1,217	71	25	40	452	654	2,167	-	20	-	4,646
Energy, Mines & Petroleum Resources	-	-	-	20	7,078	349	460	-	-	189	8,096
Environment & Parks	1,797	-	23	-	21,702	1,117	459	3	280	1,990	27,371
Forests & Lands	16,814	63	561	-	11,280	65	1,064	-	-	277	30,124
Health Care Research Foundation	4,781	189	-	-	-	-	-	-	-	-	4,970
Municipal Affairs	-	-	-	-	-	35	300	-	-	-	335
Science Council of B.C.	3,633	523	-	-	-	-	-	-	-	-	4,156
Tourism, Recreation & Culture	-	-	-	-	-	310	-	2,534	-	-	2,844
Transportation & Highways	125	-	-	-	-	10	-	-	-	-	135
Total	**31,122**	**966**	**609**	**382**	**40,512**	**3,357**	**4,450**	**2,537**	**335**	**2,456**	**86,726**

1 Administration of Extramural Programs.

TABLE 33. Total Expenditures on R&D in the Natural Sciences, by Ministry or Agency and Performer, 1987-88

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	120	970	910	-	875	-	2,875
Agriculture & Fisheries	573	457	283	-	-	-	1,313
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment & Parks	1,689	83	33	-	-	15	1,820
Forests & Lands	11,607	1,483	694	-	724	2,930	17,438
Health Care Research Foundation	189	40	4,400	341	-	-	4,970
Municipal Affairs	-	-	-	-	-	-	-
Science Council of B.C.	523	2,257	1,376	-	-	-	4,156
Tourism, Recreation & Culture	-	-	-	-	-	-	-
Transportation & Highways	115	10	-	-	-	-	125
Total	**14,816**	**5,300**	**7,696**	**341**	**1,599**	**2,945**	**32,697**

1 Includes only annual funding by Provincial Government.

TABLE 34. Detail of Intramural Expenditures in the Natural Sciences, by Ministry or Agency, 1987-88

Ministry or agency	Current expenditures		Capital expenditures	Total
	Personnel costs	Other costs		
	($'000)			
Advanced Education & Job Training	125	30	-	155
Agriculture & Fisheries	2,097	1,204	25	3,326
Energy, Mines & Petroleum Resources	3,368	3,999	189	7,556
Environment & Parks	9,227	9,613	2,013	20,853
Forests & Lands	13,677	8,402	838	22,917
Health Care Research Foundation	-	189	-	189
Municipal Affairs	312	23	-	335
Science Council of B.C.	317	206	-	523
Tourism, Recreation & Culture	1,500	1,344	-	2,844
Transportation & Highways	90	35	-	125
Total	**30,713**	**25,045**	**3,065**	**58,823**

TABLE 35. Ministerial Personnel Engaged in Scientific Activities in the Natural Sciences, by Ministry or Agency, Activity and Category, 1987-88

Ministry or agency	Research & development				Related scientific activities			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training ...	-	-	-	-	-	-	-	-
Agriculture & Fisheries	2	1	-	3	40	12	4	56
Energy, Mines & Petroleum Resources .	-	-	-	-	51	12	16	79
Environment & Parks	23	10	2	35	66	161	40	267
Forests & Lands .....[1]	90	70	27	187	63	99	32	194
Health Care Research Foundation	-	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	5	5
Science Council of B.C.	-	-	-	-	-	-	-	-
Tourism. Recreation & Culture	-	-	-	-	11	20	9	40
Transportation & Highways	2	1	-	3	-	-	-	-
Total	117	82	29	228	231	304	106	641

1 Administrative personnel included with Science Council of B.C.

TABLE 35. Ministerial Personnel Engaged in Scientific Activities in the Natural Sciences, by Ministry or Agency, Activity and Category, 1987-88 - Concluded

Ministry or agency	Administration of extramural programs				Total			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training ...	1	1	2	4	1	1	2	4
Agriculture & Fisheries	2	-	-	2	44	13	4	61
Energy, Mines & Petroleum Resources .	-	-	-	-	51	12	16	79
Environment & Parks	1	6	1	8	90	177	43	310
Forests & Lands .....[1]	-	-	2	2	153	169	61	383
Health Care Research Foundation	-	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	5	5
Science Council of B.C.	4	-	4	8	4	-	4	8
Tourism, Recreation & Culture	-	-	-	-	11	20	9	40
Transportation & Highways	-	-	-	-	2	1	-	3
Total	8	7	9	24	356	393	144	893

1 Administrative personnel included with Science Council of B.C.

TABLE 36. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1987-88

Ministry or agency	Advancement of science	Communications	Energy & fuels			
			Conservation	Fossil fuels	Hydro electric energy	Renewable resources
	($'000)					
Advanced Education & Job Training	977	535	-	-	-	-
Agriculture & Fisheries	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	924	-	-
Environment & Parks	250	-	-	-	-	-
Forests & Lands	-	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Science Council of B.C.	-	707	-	47	114	114
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	**1,227**	**1,242**	**-**	**971**	**114**	**114**

TABLE 36. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1987-88 - Continued

Ministry or agency	Environmental issues				Health
	Air	Land	Water	Other	
	($'000)				
Advanced Education & Job Training	-	-	-	235	-
Agriculture & Fisheries	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	40	-	-	-
Environment & Parks	3,099	1,311	2,407	2,557	120
Forests & Lands	-	-	-	288	-
Health Care Research Foundation	-	-	-	-	4,970
Municipal Affairs	-	-	-	-	-
Science Council of B.C.	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-
Transportation & Highways	-	-	-	-	-
Total	**3,099**	**1,351**	**2,407**	**3,080**	**5,090**

TABLE 36. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1987-88 - Continued

Ministry or agency	Industrial & economic development					
	Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
	($'000)					
Advanced Education & Job Training ..	-	410	-	970	-	922
Agriculture & Fisheries	3,540	1,106	-	-	-	-
Energy, Mines & Petroleum Resources.	-	-	-	-	7,132	-
Environment & Parks	226	697	1,694	-	-	-
Forests & Lands	-	-	29,836	-	-	-
Health Care Research Foundation	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Science Council of B.C.	457	773	813	391	175	565
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	4,223	2,986	32,343	1,361	7,307	1,487

TABLE 36. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1987-88 - Concluded

Ministry or agency	Culture, sport & recreation	Transportation	Wildlife	Other	Total
	($'000)				
Advanced Education & Job Training	-	-	-	-	4,049
Agriculture & Fisheries	-	-	-	-	4,646
Energy, Mines & Petroleum Resources	-	-	-	-	8,096
Environment & Parks	300	2	1,897	12,811	27,371
Forests & Lands	-	-	-	-	30,124
Health Care Research Foundation	-	-	-	-	4,970
Municipal Affairs	-	-	-	335	335
Science Council of B.C.	-	-	-	-	4,156
Tourism, Recreation & Culture	2,844	-	-	-	2,844
Transportation & Highways	-	135	-	-	135
Total	3,144	137	1,897	13,146	86,726

TABLE 37. Objectives of Expenditures in the Natural Sciences, by Activity, 1987-88

Objective	Intramural		Extramural		Total
	Research & development	Related scientific activities	Research & development	Related scientific activities	
	($'000)				
Advancement of science	120	285	375	447	1,227
Communications	89	-	1,153	-	1,242
Energy & fuels:					
Fossil fuels	7	905	40	19	971
Hydro electric energy	14	-	100	-	114
Renewable resources	14	-	100	-	114
Environmental issues:					
Air	350	2,682	-	67	3,099
Land	8	1,339	4	-	1,351
Water	148	2,226	14	19	2,407
Other	264	2,465	325	26	3,080
Health	189	120	4,781	-	5,090
Industrial & economic development:					
Agriculture	144	2,825	769	485	4,223
Fisheries	1,033	386	1,472	95	2,986
Forestry	11,690	11,158	6,476	3,019	32,343
Manufacturing	49	-	1,312	-	1,361
Minerals	22	6,611	153	521	7,307
Other	71	-	724	692	1,487
Social development:					
Culture, sport & recreation	-	3,144	-	-	3,144
Transportation	115	12	10	-	137
Wildlife	489	1,353	53	2	1,897
Other	-	8,496	20	4,630	13,146
Total	14,816	44,007	17,881	10,022	86,726

TABLE 38. Total Expenditures in the Natural Sciences, by Activity and Performer, 1988-89[e]

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Research & development:							
Current expenditures:							
In-house	13,636	...	...	...	...	...	13,636
Contracts	535	740	680	-	-	3,613	5,568
Grants	-	4,067	6,062	1,500	1,625	-	13,254
Research fellowships	-	250	2,510	-	-	-	2,760
Administration of extramural R&D programs	1,065	...	...	...	...	...	1,065
Sub-total	15,236	5,057	9,252	1,500	1,625	3,613	36,283
Capital expenditures	2,059	...	...	...	...	...	2,059
Related scientific activities:							
Current expenditures:							
Education support	-	40	170	-	-	-	210
Technical surveys	34,253	11,219	66	-	-	81	45,619
Information services	2,471	96	830	-	125	-	3,522
Special services & studies	4,206	503	-	-	-	800	5,509
Museum services	2,593	-	-	-	-	-	2,593
Administration of extramural RSA programs	378	...	...	...	...	...	378
Sub-total	43,901	11,858	1,066	-	125	881	57,831
Capital expenditures	2,764	...	...	...	...	...	2,764
Total	**63,960**	**16,915**	**10,318**	**1,500**	**1,750**	**4,494**	**98,937**

1 Includes only annual funding by Provincial Government.

TABLE 39. Total Expenditures in the Natural Sciences, by Ministry or Agency and Performer, 1988-89*

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	200	1,000	3,070	1,000	1,000	-	6,270
Agriculture & Fisheries	3,440	1,281	318	-	-	-	5,039
Energy, Mines & Petroleum Resources ...	8,929	438	-	-	-	881	10,248
Environment & Parks	17,249	9,395	30	-	-	15	26,689
Forests & Lands	29,997	3,041	650	-	750	3,598	38,036
Health Care Research Foundation	200	-	4,500	500	-	-	5,200
Municipal Affairs	335	-	-	-	-	-	335
Science Council of B.C	600	1,750	1,750	-	-	-	4,100
Tourism, Recreation & Culture	2,900	-	-	-	-	-	2,900
Transportation & Highways	110	10	-	-	-	-	120
**Total	**63,960**	**16,915**	**10,318**	**1,500**	**1,750**	**4,494**	**98,937**

1 Includes only annual funding by Provincial Government.

TABLE 40. Total Expenditures in the Natural Sciences, by Ministry or Agency and Activity, 1988-89*

Ministry or agency	Research and Development			Related scientific activities							Total
	Current	AEP	Capital	Education support	Technical surveys	Information services	Special services & studies	Museum services	AEP	Capital	
	($'000)										
Advanced Education & Job Training	4,945	150	-	170	-	955	-	-	50	-	6,270
Agriculture & Fisheries	1,465	52	-	40	417	683	2,362	-	20	-	5,039
Energy, Mines & Petroleum Resources	-	-	-	-	8,428	393	1,242	-	8	177	10,248
Environment & Parks	1,726	-	15	-	21,592	1,057	676	3	300	1,320	26,689
Forests & Lands	18,467	63	2,044	-	15,182	84	929	-	-	1,267	38,036
Health Care Research Foundation	5,000	200	-	-	-	-	-	-	-	-	5,200
Municipal Affairs	-	-	-	-	-	35	300	-	-	-	335
Science Council of B.C.	3,500	600	-	-	-	-	-	-	-	-	4,100
Tourism, Recreation & Culture	-	-	-	-	-	310	-	2,590	-	-	2,900
Transportation & Highways	115	-	-	-	-	5	-	-	-	-	120
Total	**35,218**	**1,065**	**2,059**	**210**	**45,619**	**3,522**	**5,509**	**2,593**	**378**	**2,764**	**98,937**

TABLE 41. Total Expenditures on R&D in the Natural Sciences, by Ministry or Agency and Performer, 1988-89

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	150	1,000	2,070	1,000	875	-	5,095
Agriculture & Fisheries	648	617	252	-	-	-	1,517
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment & Parks	1,516	180	30	-	-	15	1,741
Forests & Lands	14,076	1,500	650	-	750	3,598	20,574
Health Care Research Foundation	200	-	4,500	500	-	-	5,200
Municipal Affairs	-	-	-	-	-	-	-
Science Council of B.C.	600	1,750	1,750	-	-	-	4,100
Tourism, Recreation & Culture	-	-	-	-	-	-	-
Transportation & Highways	105	10	-	-	-	-	115
Total	**17,295**	**5,057**	**9,252**	**1,500**	**1,625**	**3,613**	**38,342**

1 Includes only annual funding by Provincial Government.

TABLE 42. Ministerial Personnel Engaged in Scientific Activities in the Natural Sciences, by Ministry or Agency, Activity and Category, 1988-89

Ministry or agency	Research & development				Related scientific activities			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training ...	-	-	-	-	-	-	-	-
Agriculture & Fisheries	2	1	-	3	39	11	4	54
Energy, Mines & Petroleum Resources .	-	-	-	-	50	11	16	77
Environment & Parks	21	8	1	30	47	135	28	210
Forests & Lands .....[1]	87	71	27	185	65	80	27	172
Health Care Research Foundation	-	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	5	5
Science Council of B.C.	-	-	-	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	11	20	9	40
Transportation & Highways	1	1	-	2	-	-	-	-
Total	111	81	28	220	212	257	89	558

1 Administrative personnel included with Science Council of B.C.

TABLE 42. Ministerial Personnel Engaged in Scientific Activities in the Natural Sciences, by Ministry or Agency, Activity and Category, 1988-89 - Concluded

Ministry or agency	Administration of extramural programs				Total			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training ...	1	2	1	4	1	2	1	4
Agriculture & Fisheries	2	-	-	2	43	12	4	59
Energy, Mines & Petroleum Resources .	-	-	-	-	50	11	16	77
Environment & Parks	1	6	1	8	69	149	30	248
Forests & Lands .....[1]	-	-	2	2	152	151	56	359
Health Care Research Foundation	-	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	5	5
Science Council of B.C.	5	-	4	9	5	-	4	9
Tourism, Recreation & Culture	-	-	-	-	11	20	9	40
Transportation & Highways	-	-	-	-	1	1	-	2
Total	9	8	8	25	332	346	125	803

1 Administrative personnel included with Science Council of B.C.

TABLE 43. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1988-89*

Ministry or agency	Advancement of science	Communications	Energy & fuels			
			Fossil fuels	Hydro electric energy	Renewable resources	Other
	($'000)					
Advanced Education & Job Training	1,305	1,260	-	-	-	-
Agriculture & Fisheries	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	850	-	-	-
Environment & Parks	240	-	-	-	-	-
Forests & Lands	-	-	-	-	-	-
Health Care Research Foundation	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Science Council of B.C.	-	697	59	105	105	-
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	**1,545**	**1,957**	**909**	**105**	**105**	**-**

TABLE 43. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1988-89* - Continued

Ministry or agency	Environmental issues				Health
	Air	Land	Water	Other	
	($'000)				
Advanced Education & Job Training	-	-	-	245	1,000
Agriculture & Fisheries	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	860	-	-
Environment & Parks	1,837	815	987	3,065	-
Forests & Lands	-	-	-	397	-
Health Care Research Foundation	-	-	-	-	5,200
Municipal Affairs	-	-	-	-	-
Science Council of B.C.	-		-	-	-
Tourism, Recreation & Culture	-	-	-	-	-
Transportation & Highways	-	-	-	-	-
Total	**1,837**	**815**	**1,847**	**3,707**	**6,200**

TABLE 43. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1988-89[e] - Continued

Ministry or agency	Industrial & economic development					
	Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
	($'000)					
Advanced Education & Job Training ...	-	400	-	1,000	-	1,060
Agriculture & Fisheries	3,540	1,499	-	-	-	-
Energy, Mines & Petroleum Resources .	-	-	-	-	8,538	-
Environment & Parks	-	650	2,675	-	-	-
Forests & Lands	-	-	37,639	-	-	-
Health Care Research Foundation	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Science Council of B.C.	451	763	804	386	172	558
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	3,991	3,312	41,118	1,386	8,710	1,618

TABLE 43. Objectives of Expenditures in the Natural Sciences, by Ministry or Agency, 1988-89e - Concluded

Ministry or agency	Culture, sport & recreation	Transportation	Wildlife	Other	Total
	($'000)				
Advanced Education & Job Training	-	-	-	-	6,270
Agriculture & Fisheries	-	-	-	-	5,039
Energy, Mines & Petroleum Resources	-	-	-	-	10,248
Environment & Parks	479	-	1,920	14,021	26,689
Forests & Lands	-	-	-	-	38,036
Health Care Research Foundation	-	-	-	-	5,200
Municipal Affairs	-	-	-	335	335
Science Council of B.C.	-	-	-	-	4,100
Tourism, Recreation & Culture	2,900	-	-	-	2,900
Transportation & Highways	-	120	-	-	120
Total	3,379	120	1,920	14,356	98,937

TABLE 44. Objectives of Expenditures in the Natural Sciences, by Activity, 1988-89[e]

Objective	Intramural		Extramural		Total
	Research & development	Related scientific activities	Research & development	Related scientific activities	
	($'000)				
Advancement of science	150	290	810	295	1,545
Communications	102	-	1,855	-	1,957
Energy & fuels:					
Fossil fuels	9	850	50	-	909
Hydro electric energy	15	-	90	-	105
Renewable resources	15	-	90	-	105
Environmental issues:					
Air	334	1,503	-	-	1,837
Land	5	810	-	-	815
Water	5	1,042	-	800	1,847
Other	247	2,825	540	95	3,707
Health	200	-	6,000	-	6,200
Industrial & economic development:					
Agriculture	103	2,649	754	485	3,991
Fisheries	1,173	343	1,551	245	3,312
Forestry	14,174	15,744	7,039	4,161	41,118
Manufacturing	56	-	1,330	-	1,386
Minerals	25	8,019	147	519	8,710
Other	82	-	706	830	1,618
Social development:					
Culture, sport & recreation	-	3,379	-	-	3,379
Transportation	105	5	10	-	120
Wildlife	495	1,350	75	-	1,920
Other	-	7,856	-	6,500	14,356
Total	17,295	46,665	21,047	13,930	98,937

Social Sciences and Humanities

TABLE 45. Total Expenditures in the Social Sciences and Humanities, by Activity, 1981-82 to 1988-89

Activity	1981-82	1982-83*	1983-84	1984-85*	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Research and development:								
Current expenditures:								
In-house	730	732	630	683	408	154	211	213
Contracts	10	10	281	255	265	276	400	340
Grants	20	-	70	80	90	86	70	-
Research fellowships	-	-	-	-	-	-	-	-
Administration of extramural R&D programs	...	...	...	...	...	...	90	90
Sub-total	760	742	981	1,018	763	516	771	643
Capital expenditures	20	20	2	1	-	10	-	-
Related scientific activities:								
Current expenditures	25,335	28,275	19,486	16,016	19,455	22,748	23,746	26,694
Administration of extramural RSA programs	...	...	...	...	...	...	440	426
Sub-total	25,335	28,275	19,486	16,016	19,455	22,748	24,186	27,120
Capital expenditures	691	655	584	560	530	312	1,516	1,208
Total	**26,806**	**29,692**	**21,053**	**17,595**	**20,748**	**23,586**	**26,473**	**28,971**

TABLE 46. Total Expenditures in the Social Sciences and Humanities, by Ministry or Agency, 1981-82 to 1988-89

Ministry or agency	1981-82	1982-83[•]	1983-84	1984-85[•]	1985-86	1986-87	1987-88	1988-89[•]
	($'000)							
Advanced Education & Job Training	...	...	...	...	...	...	959	1,103
Attorney General	1,330	1,369	757	846	837	848	1,533	1,310
Consumer & Corporate Affairs	616	562	539	450	439	679	...	...
Economic Development	...	...	...	...	...	...	8,775	8,775
Education	1,907	1,897	1,160	900	2,403	2,559	3,499	4,670
Energy, Mines & Petroleum Resources ..	3,684	5,784	5,946	1,975	2,367	2,909	2,500[•]	2,650[•]
Environment	65	170	145	138	90	85	...	...
Environment & Parks	...	...	...	...	...	...	270	268
Finance	2,052	2,277	-	-	52	95	...	...
Finance & Corporate Relations	...	...	...	...	...	...	381	443
Forests	233	142	-	-	-	-	...	...
Health	1,686	1,755	1,290	1,517	1,715	1,570	1,364	1,194
Human Resources	...	...	250	316	301	595	...	...
Industry & Small Business Development	8,240	8,240	5,348	5,348	4,539	4,121	...	...
International Trade, Science & Investment	...	...	...	...	123	748	...	...
Labour	1,208	1,236	157	157	393	352	...	...
Labour & Consumer Services	...	...	...	...	...	...	175	975
Lands, Parks & Housing	192	225	322	404	...	150	...	...
Municipal Affairs	274	351	389	391	510	411	414	396
Postsecondary Education	...	...	...	...	1,883	1,546	...	...
Provincial Secretary & Government Services	4,257	4,471	4,232	4,510	4,760	4,446	2,256	3,027
Social Services & Housing	...	...	...	...	...	...	855[•]	900[•]
Tourism	261	300	323	393	215	353	...	...
Tourism, Recreation & Culture	...	...	...	...	...	...	3,393	3,070
Transportation & Highways	801	913	195	250	121	119	99	190
Total	**26,806**	**29,692**	**21,053**	**17,595**	**20,748**	**23,586**	**26,473**	**28,971**

TABLE 47. Total Expenditures in the Social Sciences and Humanities, by Performer, 1981-82 to 1988-89

Performer	1981-82	1982-83*	1983-84	1984-85*	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Intramural	18,561	20,915	13,739	13,457	15,753	18,543	20,389	22,124
Industry	5,804	6,460	5,453	2,096	3,892	3,316	4,481	5,417
Universities	69	51	493	548	362	417	370	385
Hospitals and health organizations	49	54	40	40	59	71	88	-
B.C. Research Council[1]	91	106	179	224	11	6	200	400
Other	2,232	2,106	1,149	1,230	671	1,233	945	645
Total	26,806	29,692	21,053	17,595	20,748	23,586	26,473	28,971

1 Includes only annual funding by Provincial Government.

TABLE 48. Total Expenditures on R&D in the Social Sciences and Humanities, by Performer, 1981-82 to 1988-89

Performer	1981-82	1982-83*	1983-84	1984-85*	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Intramural	760	762	642	694	408	164	501	503
Industry	-	-	8	8	20	20	190	140
Universities	20	-	55	53	50	54	-	-
Hospitals & health organizations	-	-	-	-	-	-	-	-
B.C. Research Council[1]	-	-	-	-	-	-	-	-
Other	-	-	278	264	285	288	80	-
Total	780	762	983	1,019	763	526	771	643

1 Includes only annual funding by Provincial Government.

TABLE 49. Total Expenditures on R&D in the Social Sciences and Humanities, by Ministry or Agency, 1981-82 to 1988-89

Ministry or agency	1981-82	1982-83*	1983-84	1984-85*	1985-86	1986-87	1987-88	1988-89*
	($'000)							
Advanced Education & Job Training	...	...	...	...	...	...	-	-
Attorney General	182	193	125	125	54	60	-	-
Consumer & Corporate Affairs	-	-	-	-	-	-	...	...
Economic Development	...	...	...	...	...	...	50	50
Education	-	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-	-
Environment	-	-	-	-	-	-	...	...
Environment & Parks	...	...	...	...	...	...	-	-
Finance	-	-	-	-	-	-	...	...
Finance & Corporate Relations	...	...	...	...	...	...	-	-
Health	132	97	50	90	185	-	99	48
Human Resources	...	...	45	58	55	49	...	...
Industry & Small Business Development	-	-	25	25	20	60	...	...
International Trade, Science & Investment	...	...	...	...	-	-	...	...
Labour	-	-	-	-	-	-	...	...
Labour & Consumer Services	...	...	...	...	...	...	-	-
Lands, Parks & Housing	-	-	-	-	-	-	...	...
Municipal Affairs	16	22	39	39	-	-	-	-
Postsecondary Education	...	...	...	...	-	-	...	...
Provincial Secretary & Government Services	450	450	699	682	443	357	-	-
Social Services & Housing	...	...	...	...	...	...	300*	300*
Tourism	-	-	-	-	-	-	...	...
Tourism, Recreation & Culture	...	...	...	...	...	...	322	245
Transportation & Highways	-	-	-	-	6	-	-	-
Total	**780**	**762**	**983**	**1,019**	**763**	**526**	**771**	**643**

TABLE 50. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Activity and Category, 1981-82 to 1988-89

Activity and category	1981-82	1982-83*	1983-84	1984-85*	1985-86	1986-87	1987-88	1988-89*
	(person-years)							
Research & development:								
Scientific & professional	20	19	13	13	6	3	6	6
Technical	6	6	6	7	2	-	-	-
Other	3	2	1	1	5	-	-	-
Sub-total	29	27	20	21	13	3	6	6
Related scientific activities:								
Scientific & professional	236	227	170	157	189	235	217	219
Technical	79	78	43	46	49	25	25	26
Other	145	134	104	92	111	103	91	91
Sub-total	460	439	317	295	349	363	333	336
Administration of extramural programs:								
Scientific & professional	...	...	...	...	...	...	11	10
Technical	...	...	...	...	...	...	2	2
Other	...	...	...	...	...	...	2	2
Sub-total	...	...	...	...	...	...	15	14
Total science activities:								
Scientific & professional	256	246	183	170	195	238	234	235
Technical	85	84	49	53	51	25	27	28
Other	148	136	105	93	116	103	93	93
Total	489	466	337	316	362	366	354	356

NOTE: Although 1987-88 is the first year that person-years devoted to the administration of extramural programs are being shown separately, these personnel have been previously included, in most cases, with the activity being administered.

TABLE 51. Total Expenditures in the Social Sciences and Humanities, by Ministry or Agency and Sources of Funds, 1987-88

Ministry or agency	Ministerial budget	Transfers from other ministries	Transfers from federal government	From trust funds	From other sources	Total
	($'000)					
Advanced Education & Job Training	959	-	-	-	-	959
Attorney General	1,160	-	373	-	-	1,533
Economic Development	8,085	215	475	-	-	3,775
Education	3,499	-	-	-	-	3,499
Energy, Mines & Petroleum Resources	2,500	-	-	-	-	2,500
Environment & Parks	270	-	-	-	-	270
Finance & Corporate Affairs	381	-	-	-	-	381
Health	1,314	-	-	-	50	1,364
Labour & Consumers Services	175	-	-	-	-	175
Municipal Affairs	414	-	-	-	-	414
Provincial Secretary & Government Services	2,256	-	-	-	-	2,256
Social Services & Housing	855	-	-	-	-	855
Tourism, Recreation & Culture	2,435	-	558	-	400	3,393
Transportation & Highways	99	-	-	-	-	99
Total	**24,402**	**215**	**1,406**	**-**	**450**	**26,473**

TABLE 52. Total Expenditures in the Social Sciences and Humanities, by Activity and Performer, 1987-88

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Research and development:							
Current expenditures:							
In-house	211	...	...	...	...	...	211
Contracts	200	190	-	-	-	10	400
Grants	-	-	-	-	-	70	70
Research fellowships	-	-	-	-	-	-	-
Administration of extramural R&D programs	90	...	...	...	...	...	90
Sub-Total	501	190	-	-	-	80	771
Capital expenditures	-	...	...	...	...	...	-
Related scientific activities:							
Current expenditures	17,932	4,291	370	88	200	865	23,746
Administration of extramural RSA programs	440	...	...	...	...	...	440
Sub-total	18,372	4,291	370	88	200	865	24,186
Capital expenditures	1,516	...	...	...	...	...	1,516
Total	**20,389**	**4,481**	**370**	**88**	**200**	**945**	**26,473**

1 Includes only annual funding by Provincial Government.

TABLE 53. Total Expenditures in the Social Sciences and Humanities, by Ministry or Agency and Performer, 1987-88

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	676	2	235	-	-	46	959
Attorney General	979	110	-	-	-	444	1,533
Economic Development	7,350	1,170	85	-	-	170	8,775
Education	1,513	1,986	-	-	-	-	3,499
Energy, Mines & Petroleum Resources	2,300	200	-	-	-	-	2,500
Environment & Parks	270	-	-	-	-	-	270
Finance & Corporate Affairs	381	-	-	-	-	-	381
Health	976	50	50	88	200	-	1,364
Labour & Consumers Services	175	-	-	-	-	-	175
Municipal Affairs	338	76	-	-	-	-	414
Provincial Secretary & Government Services	2,249	7	-	-	-	-	2,256
Social Services & Housing	850	-	-	-	-	5	855
Tourism, Recreation & Culture	2,323	880	-	-	-	190	3,393
Transportation & Highways	9	-	-	-	-	90	99
Total	**20,389**	**4,481**	**370**	**88**	**200**	**945**	**26,473**

1 Includes only annual funding by provincial government.

TABLE 54. Total Expenditures in the Social Sciences and Humanities, by Ministry or Agency and Activity, 1987-88

Ministry or agency	Research & development			Related scientific activities			Total
	Current	AEP[1]	Capital	Current	AEP[1]	Capital	
	($'000)						
Advanced Education & Job Training	-	-	-	864	95	-	959
Attorney General	-	-	-	1,533	-	-	1,533
Economic Development	50	-	-	7,655	70	1,000	8,775
Education	-	-	-	3,324	175	-	3,499
Energy, Mines & Petroleum Resources	-	-	-	2,500	-	-	2,500
Environment & Parks	-	-	-	270	-	-	270
Finance & Corporate Affairs	-	-	-	357	-	24	381
Health	99	-	-	1,265	-	-	1,364
Labour & Consumers Services	-	-	-	175	-	-	175
Municipal Affairs	-	-	-	414	-	-	414
Provincial Secretary & Government Services	-	-	-	1,764	-	492	2,256
Social Services & Housing	300	-	-	555	-	-	855
Tourism, Recreation & Culture	232	90	-	2,971	100	-	3,393
Transportation & Highways	-	-	-	99	-	-	99
Total	681	90	-	23,746	440	1,516	26,473

1 Administration of extramural programs.

TABLE 55. Total Expenditures on R&D in the Social Sciences and Humanities, by Ministry or Agency and Performer, 1987-88

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	-	-	-	-	-	-	-
Attorney General	-	-	-	-	-	-	-
Economic Development	50	-	-	-	-	-	50
Education	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment & Parks	-	-	-	-	-	-	-
Finance & Corporate Affairs	-	-	-	-	-	-	-
Health	49	50	-	-	-	-	99
Labour & Consumers Services	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-	-
Social Services & Housing	300	-	-	-	-	-	300
Tourism, Recreation & Culture	102	140	-	-	-	80	322
Transportation & Highways	-	-	-	-	-	-	-
Total	**501**	**190**	**-**	**-**	**-**	**80**	**771**

1 Includes only annual funding by Provincial Government.

TABLE 56. Detail of Intramural Expenditures in the Social Sciences and Humanities, by Ministry or Agency, 1987-88

Ministry or agency	Current expenditures		Capital Expenditures	Total
	Personnel costs	Other costs		
	($000)			
Advanced Education & Job Training	562	114	-	676
Attorney General	814	165	-	979
Economic Development	4,350	2,000	1,000	7,350
Education	1,232	281	-	1,513
Energy, Mines & Petroleum Resources	1,300	1,000	-	2,300
Environment & Parks	171	99	-	270
Finance & Corporate Affairs	349	8	24	381
Health	652	324	-	976
Labour & Consumers Services	165	10	-	175
Municipal Affairs	329	9	-	338
Provincial Secretary & Government Services	1,419	338	492	2,249
Social Services & Housing	515	335	-	850
Tourism, Recreation & Culture	1,723	600	-	2,323
Transportation & Highways	9	-	-	9
Total	**13,590**	**5,283**	**1,516**	**20,389**

TABLE 57. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Ministry or Agency, Activity and Category, 1987-88

Ministry or agency	Research & development				Related scientific activities			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	-	-	-	-	10	-	4	14
Attorney General	-	-	-	-	15	-	6	21
Economic Development	1	-	-	1	73	6	26	105
Education	-	-	-	-	18	-	9	27
Energy, Mines & Petroleum Resources	-	-	-	-	23	-	10	33
Environment & Parks	-	-	-	-	3	1	1	5
Finance & Corporate Affairs	-	-	-	-	7	-	1	8
Health	1	-	-	1	13	-	7	20
Labour & Consumers Services	-	-	-	-	3	-	3	6
Municipal Affairs	-	-	-	-	6	-	1	7
Provincial Secretary & Government Services	-	-	-	-	18	8	16	42
Social Services & Housing	3	-	-	3	8	-	3	11
Tourism, Recreation & Culture	1	-	-	1	20	10	4	34
Transportation & Highways	-	-	-	-	-	-	-	-
Total	**6**	**-**	**-**	**6**	**217**	**25**	**91**	**333**

TABLE 57. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Ministry or Agency, Activity and Category, 1987-88 - Concluded

Ministry or agency	Administration of extramural programs				Total			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	2	-	-	2	12	-	4	16
Attorney General	-	-	-	-	15	-	6	21
Economic Development	2	-	-	2	76	6	26	108
Education	4	-	-	4	22	-	9	31
Energy, Mines & Petroleum Resources	-	-	-	-	23	-	10	33
Environment & Parks	-	-	-	-	3	1	1	5
Finance & Corporate Affairs	-	-	-	-	7	-	1	8
Health	-	-	-	-	14	-	7	21
Labour & Consumers Services	-	-	-	-	3	-	3	6
Municipal Affairs	-	-	-	-	6	-	1	7
Provincial Secretary & Government Services	-	-	-	-	18	8	16	42
Social Services & Housing	-	-	-	-	11	-	3	14
Tourism, Recreation & Culture	3	2	2	7	24	12	6	42
Transportation & Highways	-	-	-	-	-	-	-	-
Total	11	2	2	15	234	27	93	354

TABLE 58. Objectives of Expenditures in the Social Sciences and Humanities Sciences, by Ministry or Agency, 1987-88

Ministry or agency	Advancement of science	Communications	Energy & fuels		Health
			Fossil fuels	Hydro electric energy	
	($'000)				
Advanced Education & Job Training	240	-	-	-	-
Attorney General	-	-	-	-	-
Economic Development	50	50	375	300	100
Education	-	-	-	-	-
Energy, Mines & Petroleum Resources[a]	-	-	1,675	825	-
Environment & Parks	-	-	-	-	-
Finance & Corporate Affairs	-	12	12	-	49
Health	-	-	-	-	1,364
Labour & Consumers Services	-	-	-	-	-
Municipal Affairs	-	-	-	-	-
Provincial Secretary & Government Services	-	7	-	-	-
Social Services & Housing[a]	-	-	-	-	-
Tourism, Recreation & Culture	5	-	-	-	-
Transportation & Highways	-	-	-	-	-
Total	**295**	**69**	**2,062**	**1,125**	**1,513**

TABLE 58. Objectives of Expenditures in the Social Sciences and Humanities, by Ministry or Agency 1987-88 - Continued

Ministry or agency	Industrial & economic development					
	Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
	($'000)					
Advanced Education & Job Training	-	-	-	-	-	-
Attorney General	-	-	-	-	-	-
Economic Development	-	200	1,200	3,800	600	-
Education	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-
Environment & Parks	-	-	-	-	-	-
Finance & Corporate Affairs	12	-	25	25	-	173
Health	-	-	-	-	-	-
Labour & Consumers Services	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-
Social Services & Housing	-	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	**12**	**200**	**1,225**	**3,825**	**600**	**173**

TABLE 58. Objectives of Expenditures in the Social Sciences and Humanities, by Ministry or Agency, 1987-88 - Concluded

Ministry or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
	($'000)								
Advanced Education & Job Training ...	-	660	59	-	-	-	-	-	959
Attorney General	-	-	-	-	1,533	-	-	-	1,533
Economic Development	900	100	600	350	-	150	-	-	8,775
Education	-	3,499	-	-	-	-	-	-	3,499
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-	-	2,500
Environment & Parks	225	-	-	-	5	-	28	12	270
Finance & Corporate Affairs	-	24	25	-	-	24	-	-	381
Health	-	-	-	-	-	-	-	-	1,364
Labour & Consumers Services	-	-	175	-	-	-	-	-	175
Municipal Affairs	-	-	-	414	-	-	-	-	414
Provincial Secretary & Government Services	2,249	-	-	-	-	-	-	-	2,256
Social Services & Housing	-	-	700	155	-	-	-	-	855
Tourism, Recreation & Culture	2,650	-	-	5	533	-	-	200	3,393
Transportation & Highways	-	-	-	-	-	99	-	-	99
Total	**6,024**	**4,283**	**1,559**	**924**	**2,071**	**273**	**28**	**212**	**26,473**

TABLE 59. Objectives of Expenditures in the Social Sciences and Humanities, by Activity, 1987-88

Objective	Intramural		Extramural		Total
	Research & development	Related scientific activities	Research & development	Related scientific activities	
	($'000)				
Advancement of science	50	245	-	-	295
Communications	-	62	-	7	69
Energy & fuels:					
Fossil fuels	-	1,852	-	210	2,062
Hydro electric energy	-	960	-	165	1,125
Health	49	1,076	50	338	1,513
Industrial & economic development:					
Agriculture	-	12	-	-	12
Fisheries	-	200	-	-	200
Forestry	-	1,025	-	200	1,225
Manufacturing	-	3,425	-	400	3,825
Minerals	-	500	-	100	600
Other	-	173	-	-	173
Social development:					
Culture, sport & recreation	-	4,784	-	1,240	6,024
Education	-	2,016	-	2,267	4,283
Human resources	250	1,307	-	2	1,559
Urban & regional studies	50	743	-	131	924
Other	102	1,275	140	554	2,071
Transportation	-	183	-	90	273
Wildlife	-	28	-	-	28
Other	-	22	80	110	212
Total	501	19,888	270	5,814	26,473

TABLE 60. Total Expenditures in the Social Sciences and Humanities, by Activity and Performer, 1988-89*

Activity	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Research and development:							
Current expenditures:							
In-house	213	...	...	...	...	...	213
Contracts	200	140	-	-	-	-	340
Grants	-	-	-	-	-	-	-
Research fellowships	-	-	-	-	-	-	-
Administration of extramural R&D programs	90	...	...	...	...	...	90
Sub-Total	503	140	-	-	-	-	643
Capital expenditures	-	...	...	...	...	...	-
Related scientific activities:							
Current expenditures	19,987	5,277	385	-	400	645	26,694
Administration of extramural RSA programs	426	...	...	...	...	...	426
Sub-total	20,413	5,277	385	-	400	645	27,120
Capital expenditures	1,208	...	...	...	...	...	1,208
Total	**22,124**	**5,417**	**385**	**-**	**400**	**645**	**28,971**

1 Includes only annual funding by Provincial Government.

TABLE 61. Total Expenditures in the Social Sciences and Humanities, by Ministry or Agency and Performer, 1988-89

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	742	36	300	-	-	25	1,103
Attorney General	840	20	-	-	-	450	1,310
Economic Development	7,350	1,170	85	-	-	170	8,775
Education	1,534	3,136	-	-	-	-	4,670
Energy, Mines & Petroleum Resources	2,550	100	-	-	-	-	2,650
Environment & Parks	268	-	-	-	-	-	268
Finance & Corporate Affairs	443	-	-	-	-	-	443
Health	1,194	-	-	-	-	-	1,194
Labour & Consumer Services	575	-	-	-	400	-	975
Municipal Affairs	301	95	-	-	-	-	396
Provincial Secretary & Government Services	3,027	-	-	-	-	-	3,027
Social Services & Housing	900	-	-	-	-	-	900
Tourism, Recreation & Culture	2,330	740	-	-	-	-	3,070
Transportation & Highways	70	120	-	-	-	-	190
Total	**22,124**	**5,417**	**385**	**-**	**400**	**645**	**28,971**

1 Includes only annual funding by Provincial Government.

TABLE 62. Total Expenditures in the Social Sciences and Humanities, by Ministry or Agency and Activity, 1988-89

Ministry or agency	Research & development			Related scientific activities			Total
	Current	AEP[1]	Capital	Current	AEP[1]	Capital	
	($'000)						
Advanced Education & Job Training	-	-	-	1,098	5	-	1,103
Attorney General	-	-	-	1,310	-	-	1,310
Economic Development	50	-	-	7,655	70	1,000	8,775
Education	-	-	-	4,488	182	-	4,670
Energy, Mines & Petroleum Resources	-	-	-	2,650	-	-	2,650
Environment & Parks	-	-	-	268	-	-	268
Finance & Corporate Affairs	-	-	-	435	-	8	443
Health	48	-	-	1,146	-	-	1,194
Labour & Consumer Services	-	-	-	725	50	200	975
Municipal Affairs	-	-	-	396	-	-	396
Provincial Secretary & Government Services	-	-	-	3,027	-	-	3,027
Social Services & Housing	300	-	-	600	-	-	900
Tourism, Recreation & Culture	155	90	-	2,720	105	-	3,070
Transportation & Highways	-	-	-	176	14	-	190
Total	**553**	**90**	**-**	**26,694**	**426**	**1,208**	**28,971**

1 Administration of extramural programs.

TABLE 63. Total Expenditures on R&D in the Social Sciences and Humanities, by Ministry or Agency and Performer, 1988-89*

Ministry or agency	Intramural	Industry	Universities	Hospitals & health organizations	B.C. Research Council[1]	Other	Total
	($'000)						
Advanced Education & Job Training	-	-	-	-	-	-	-
Attorney General	-	-	-	-	-	-	-
Economic Development	50	-	-	-	-	-	50
Education	-	-	-	-	-	-	-
Energy, Mines & Petroleum Resources	-	-	-	-	-	-	-
Environment & Parks	-	-	-	-	-	-	-
Finance	-	-	-	-	-	-	-
Health	48	-	-	-	-	-	48
Labour & Consumer Services	-	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-	-
Social Services & Housing	300	-	-	-	-	-	300
Tourism, Recreation & Culture	105	140	-	-	-	-	245
Transportation & Highways	-	-	-	-	-	-	-
Total	**503**	**140**	-	-	-	-	**643**

1 Includes only annual funding by Provincial Government.

TABLE 64. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Ministry or Agency, Activity and Category, 1988-89[a]

Ministry or agency	Research & development				Related scientific activities			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	-	-	-	-	11	-	4	15
Attorney General	-	-	-	-	13	-	5	18
Economic Development	1	-	-	1	73	6	26	105
Education	-	-	-	-	18	-	9	27
Energy, Mines & Petroleum Resources[b]	-	-	-	-	23	-	10	33
Environment & Parks	-	-	-	-	3	2	-	5
Finance & Corporate Affairs	-	-	-	-	8	-	1	9
Health	1	-	-	1	15	-	7	22
Labour & Consumer Services	-	-	-	-	4	-	3	7
Municipal Affairs	-	-	-	-	6	-	1	7
Provincial Secretary & Government Services	-	-	-	-	17	8	16	41
Social Services & Housing[b]	3	-	-	3	8	-	3	11
Tourism, Recreation & Culture	1	-	-	1	20	10	4	34
Transportation & Highways	-	-	-	-	-	-	2	2
Total	**6**	**-**	**-**	**6**	**219**	**26**	**91**	**336**

TABLE 64. Ministerial Personnel Engaged in Scientific Activities in the Social Sciences and Humanities, by Ministry or Agency, Activity and Category, 1988-89[e] - Concluded

Ministry or agency	Administration of extramural programs				Total			
	Scientific & professional	Technical	Other	Total	Scientific & professional	Technical	Other	Total
	(person-years)							
Advanced Education & Job Training	-	-	-	-	11	-	4	15
Attorney General	-	-	-	-	13	-	5	18
Economic Development	2	-	-	2	76	6	26	108
Education	4	-	-	4	22	-	9	31
Energy, Mines & Petroleum Resources[e]	-	-	-	-	23	-	10	33
Environment & Parks	-	-	-	-	3	2	-	5
Finance & Corporate Affairs	-	-	-	-	8	-	1	9
Health	-	-	-	-	16	-	7	23
Labour & Consumer Services	1	-	-	1	5	-	3	8
Municipal Affairs	-	-	-	-	6	-	1	7
Provincial Secretary & Government Services	-	-	-	-	17	8	16	41
Social Services & Housing[e]	-	-	-	-	11	-	3	14
Tourism, Recreation & Culture	3	2	2	7	24	12	6	42
Transportation & Highways	-	-	-	-	-	-	2	2
Total	10	2	2	14	235	28	93	356

TABLE 65. Objectives of Expenditures in the Social Sciences and Humanities by Ministry or Agency, 1988-89[a]

Ministry or agency	Advancement of science	Communications	Energy & fuels			Health
			Fossil fuels	Hydro electric energy	Renewable resources	
	($'000)					
Advanced Education & Job Training	310	-	-	-	-	-
Attorney General	-	-	-	-	-	-
Economic Development	50	50	375	300	-	100
Education	-	-	-	-	-	-
Energy, Mines & Petroleum Resources(e)	-	-	1,775	875	-	-
Environment & Parks	-	-	-	-	-	-
Finance & Corporate Affairs	-	17	13	-	-	52
Health	-	-	-	-	-	1,194
Labour & Consumer Services	-	-	-	-	-	800
Municipal Affairs	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-
Social Services & Housing[a]	-	-	-	-	-	-
Tourism, Recreation & Parks	5	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	**365**	**67**	**2,163**	**1,175**	**-**	**2,146**

TABLE 65. Objectives of Expenditures in the Social Sciences and Humanities, by Ministry or Agency 1988-89[e] - Continued

Ministry or agency	Industrial & economic development					
	Agriculture	Fisheries	Forestry	Manufacturing	Minerals	Other
	($'000)					
Advanced Education & Job Training	-	-	-	-	-	-
Attorney General	-	-	-	-	-	-
Economic Development	-	200	1,200	3,800	600	-
Education	-	-	-	-	-	-
Energy, Mines & Petroleum Resources[e]	-	-	-	-	-	-
Environment & Parks	-	-	-	-	-	-
Finance & Corporate Affairs	13	-	26	26	-	218
Health	-	-	-	-	-	-
Labour & Consumer Services	-	-	-	-	-	-
Municipal Affairs	-	-	-	-	-	-
Provincial Secretary & Government Services	-	-	-	-	-	-
Social Services & Housing[e]	-	-	-	-	-	-
Tourism, Recreation & Culture	-	-	-	-	-	-
Transportation & Highways	-	-	-	-	-	-
Total	**13**	**200**	**1,226**	**3,826**	**600**	**218**

TABLE 65. Objectives of Expenditures in the Social Sciences and Humanities, by Ministry or Agency, 1988-89[•] - Concluded

Ministry or agency	Social development					Transportation	Wildlife	Other	Total
	Culture, sport & recreation	Education	Human resources	Urban & regional studies	Other				
	($'000)								
Advanced Education & Job Training	-	704	89	-	-	-	-	-	1,103
Attorney General	-	-	-	-	1,310	-	-	-	1,310
Economic Development	900	100	600	350	-	150	-	-	8,775
Education	-	4,670	-	-	-	-	-	-	4,670
Energy, Mines & Petroleum Resources[•]	-	-	-	-	-	-	-	-	2,650
Environment & Parks	218	-	-	-	-	-	40	10	268
Finance & Corporate Affairs	-	26	26	-	-	26	-	-	443
Health	-	-	-	-	-	-	-	-	1,194
Labour & Consumer Services	-	-	175	-	-	-	-	-	975
Municipal Affairs	-	-	-	396	-	-	-	-	396
Provincial Secretary & Government Services	3,027	-	-	-	-	-	-	-	3,027
Social Services & Housing[•]	-	-	725	175	-	-	-	-	900
Tourism, Recreation & Culture	2,525	-	-	5	535	-	-	-	3,070
Transportation & Highways	-	-	-	-	-	190	-	-	190
Total	**6,670**	**5,500**	**1,615**	**926**	**1,845**	**366**	**40**	**10**	**28,971**

TABLE 66. Objective of Expenditures in the Social Sciences and Humanities, by Activity, 1988-89[e]

Objective	Intramural		Extramural		Total
	Research & development	Related scientific activities	Research & development	Related scientific activities	
	($'000)				
Advancement of science	50	315	-	-	365
Communications	-	67	-	-	67
Energy & fuels:					
Fossil fuels	-	2,018	-	145	2,163
Hydro electric energy	-	1,045	-	130	1,175
Health	48	1,698	-	400	2,146
Industrial & economic development:					
Agriculture	-	13	-	-	13
Fisheries	-	200	-	-	200
Forestry	-	1,026	-	200	1,226
Manufacturing	-	3,426	-	400	3,826
Minerals	-	500	-	100	600
Other	-	218	-	-	218
Social development:					
Culture, sport & recreation	-	5,570	-	1,100	6,670
Education	-	2,039	-	3,461	5,500
Human resources	250	1,329	-	36	1,615
Urban regional studies	50	731	-	145	926
Other	105	1,130	140	470	1,845
Transportation	-	246	-	120	366
Wildlife	-	40	-	-	40
Other	-	10	-	-	10
Total	503	21,621	140	6,707	28,971

APPENDIX

DEFINITIONS

This report covers those scientific and technological activities which involve the generation, dissemination and application of new scientific and technological knowledge. The central activity is research and experimental development (R&D). In addition, there are a number of related scientific activities (RSA) which are considered in less detail.

R&D is creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humans, culture and society and the use of this stock of knowledge to devise new applications. It requires the acquisition of knowledge and not just information. New knowledge involves the integration of newly acquired information into existing hypotheses, the formulation and testing of new hypotheses or the re-evaluation of existing observations.

The major related scientific activities (**RSA**) are education support, technical surveys, statistical surveys, information services, special services and studies, and museum services. Education support, statistical surveys, and museum services are largely self-explanatory the other three are described below.

Technical surveys are activities directed towards the exploration and systematic description of the earth and its natural resources. The activities include the gathering, processing, collating and analyzing of data on natural phenomena except when part of a research project or a museum service. The preparation, printing and cataloguing of maps and survey reports are also included.

Information services are activities directed to recording, classifying, translating, and disseminating scientific and technological information (**Technology Transfer**) as well as information resulting from R&D in the social sciences or required in support of such R&D. Included are the operating of scientific and technical libraries, specialized libraries and archives, the publication of scientific journals and bibliographies, and the organization of scientific conferences. Grants for the publication of scholarly works are also included.

Special services and studies in the natural sciences are activities directed towards the establishment of national and provincial standards for materials, devices, products and processes; the calibration of secondary standards; non-routine quality testing; feasibility studies and demonstration projects. In the social sciences, special services and studies are systematic investigations carried out in order to provide information needed for planning or policy formulation, including feasibility studies and demonstration projects.

Activities are classified as either natural sciences or social sciences and humanities. **Natural sciences** consist of disciplines concerned with the understanding, exploring, developing or utilizing the natural world. Included are the engineering, mathematical, environ- mental, life and physical sciences. **Social sciences and humanities** include all disciplines involving the study of human actions and conditions and the social, economic and institutional mechanisms affecting humans. Included are such disciplines as anthro- pology, business administration and commerce, communications, criminology, demography, economics, geography, history, languages, literature and linguistics, law, library science, philosophy, political science, psychology, religious studies, social work, sociology and urban and regional studies.

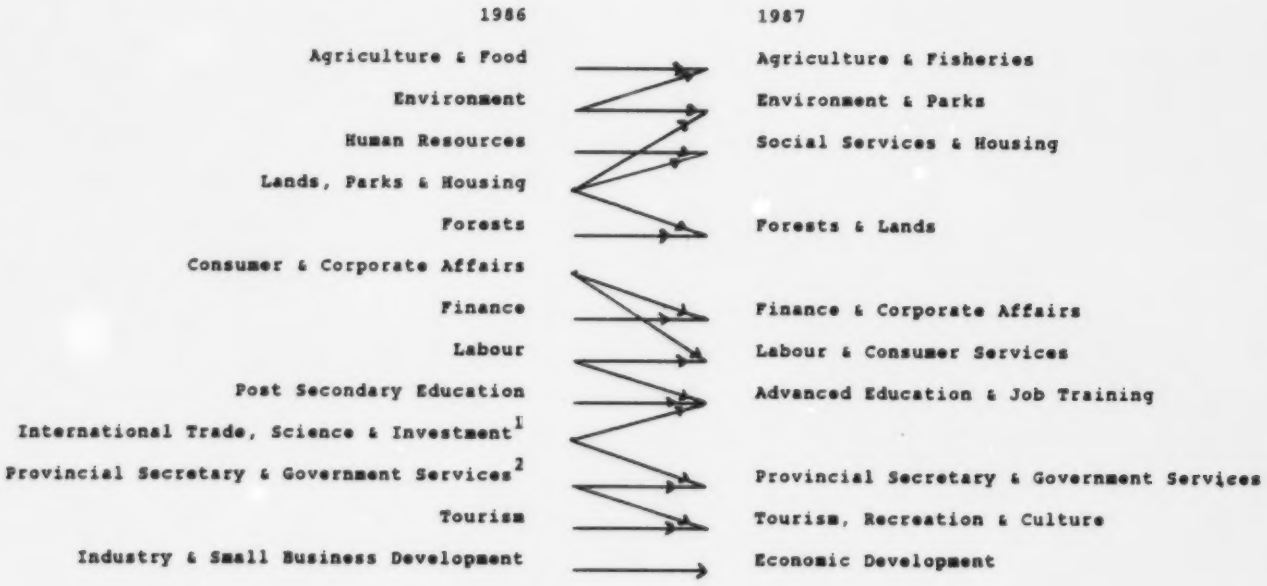
Five performing sectors are identified besides the British Columbia Research Council. Intramural refers to the provincial ministry or agency performing a scientific activity. Industry consists principally of private corporations but also includes crown corporations with a commercial function (e.g., power utilities) and industrial research institutes not controlled by another sector. Universities cover postsecondary educational institutions and affiliated teaching and research facilities. Hospitals and health organizations are health organizations such as the Heart Foundation and hospitals which do not belong to the university sector. Other includes non-resident performers of scientific activities funded by the provincial government, as well as recipients not covered elsewhere such as the Federal Government, other provincial departments and individuals.

Expenditures are either current or capital. **Current expenditures** include those costs for personnel, transportation and communications, information, professional and special services, rentals, purchased repair and upkeep, utilities, materials and supplies. **Capital expenditures** inlcude the cost of acquiring land, buildings, machinery and equipment. Total expenditures include current plus capital.

THE RESPONDENTS

NOTE:

In November 1986, a number of ministries were reorganized. Mandates changed or were combined and/or shifted to newly created ministries. These ministries are shown historically under both old and new names:



1 Communications Program moved to Provincial Secretary and Government Services; Science & Technology formed part of Advanced Education & Job Training.

2 Provincial Museums, Recreation & Sports Branch and Heritage Conservation Branch joined Tourism to form Ministry of Tourism, Recreation & Culture.

THE RESPONDENTS

The following Ministries were involved in scientific activities in the province of British Columbia in 1987-88. The coordinator listed is the person responsible for the expenditures reported. We wish to thank the coordinators, as well as those assisting in the amalgamation of data, for their time and efforts in providing us with these statistics. The latest reorganization which took place after this survey had been conducted is not reflected in the data herein reported.

Advanced Education & Job Training — Coordinator: Scott MacInnis (387-6157)

Five divisions within this Ministry are engaged in related scientific activities: Science and Technology, Policy, Planning and Legislation, Funding and Analysis, Programs Division, and the Women's Secretariat. The Science and Technology Division not only develops, plans and programs recommendations for science policy but also administers the Science and Technology Subagreement to ERDA. This Ministry is the source of funds for the Science Council of B.C. and the B.C. Research Council.

Agriculture and Fisheries — Coordinator: Mark Aiyadurai (387-7168)
Coordinator: Larry Neilson (387-9565)

The mission of this Ministry is to enhance the productivity of agricultural and fish products. The main identifiable scientific program of the Ministry was the "Demonstration of Agricultural Technology and Economics" (D.A.T.E.). The Statistics and Quantitative Analysis Branch and the Information Branch were involved in the dissemination of information. The Aquaculture and Commercial Fisheries Branch both performs and funds scientific activities as they pertain to the fisheries industry.

Attorney General — Coordinator: Eric Davies (387-5256)

The Police Services Branch and the Policy Planning Branch reported science activites in the social sciences and humanities. The activites of the Law Reform Commision are funded by the Ministry.

Economic Development — Coordinator: Roy A. Whitaker (387-0331)

The purpose of this Ministry was to encourage balanced economic growth in all regions of the province through the development, implementation and coordination of industrial and economic programs and policies. Four divisions reported scientific activities: Policy, Planning and Legislation Division, Business Development Division, Trade, Investment and Industrial Development Division, and the Central Statistics Bureau. Less than 20% of the Ministry's scientific activities had been contracted out to the various performing sectors.

Education — Coordinator: Connie Clark (356-2345)

The activities of this Ministry are concerned primarily with education policy development and the evaluation of schools and students. Over one-half of the Ministry's activities in the social sciences were performed extramurally. The units reporting either performing or funding scientific activities were Policy and Planning, Legislation Services, Schools Programs, Schools Management and Special Education.

Energy, Mines and Petroleum Resources — Coordinator: Tim Chatton (387-1368)

The science activities of four different divisions were included in the Ministry's report: Mineral Policy and Evaluation Branch, Geological Survey Branch, Inspection and Engineering Branch, and Energy and Petroleum Resources Branch. The Ministry administers the Mineral Development Subsidiary Agreement which is part of the Canada/British Columbia Economic and Regional Development Agreement (ERDA). This agreement not only provides grant and contribution funding for mineral development but also encourages mineral development through geological, market and feasiblity studies.

THE RESPONDENTS

Environment and Parks — Coordinator: Roger Reid (387-9671)

This Ministry, the second largest performer of scientific activities in 1987-88, reported expenditures by Environmental Laboratory, Recreational Fisheries Branch, Resource Quality Section, Surveys and Resource Mapping Branch, Waste Management Branch, Wildlife Branch and Parks and Outdoor Recreation Division. Almost 80% of the science activities were performed by Ministerial personnel. The Environmental Laboratory is not included for 1988-89 due to its privatization.

Finance and Corporate Relations — Coordinator: Elaine Taylor (387-3184)

The information resulting from the studies carried out by Treasury Board Staff and those of Corporate Relations, Policy and Legislation Branch provide data for policy formulation on economic and corporate issues.

Forests and Lands — Coordinator: Gail Archibald (387-3370)

The Ministry of Forests and Lands was the largest provincial performer of scientific activities in 1987-88. The mission of its research program is to provide innovative solutions to the increasingly complex, high impact forest resources management problems in British Columbia. The branches which reported scientific activities were Inventory, Integrated Services, Protection, Research and Silviculture. Almost 85% of the total science and 80% of the research and development activities were performed by the Ministry itself. The Research Branch administered approximately $2 million in contracts funded by the Federal Resource Development Agreement.

Health — Coordinator: William J. Lawrence (387-2339)

Scientific activities in the social sciences were identified in the following areas: Forensic Psychiatric Services, Prevention and Promotion Division, Vital Statistics, Continuing Care, Data Support Services and the Library. The Alcohol and Drug Program is included with the Ministry of Labour and Consumer Services as of fiscal year 1988-89.

Health Care Research Foundation — Coordinator: Max Cairns (438-2752)

The Foundation awards grants and research fellowships to researchers in hospitals and health organizations and in the university sector. The Research Secretariat of B.C. provides administrative support to the Foundation.

Labour and Consumer Services — Coordinator: Bruce McCulloch (387-1905)

The Policy and Legislation Branch reported performing RSA in the social sciences. All the work was done intramurally. As a result of reorganization, the Alcohol and Drug Abuse Program is included with this Ministry as of 1988-90.

THE RESPONDENTS

Municipal Affairs — Coordinator: Peter Lofthouse (387-4052)

The Policy and Research Branch both performs and funds studies on a variety of topics impacting on community development. The Office of the Fire Commissioner collects and analyses fire statistics.

Provincial Secretary and Government Services — Coordinator: Frances Baskerville (387-0417)

This report includes the activities of Ministry Policy Branch, Communication Programs Branch and the Provincial Archives. All the activities, the objective of which is culture, sport and recreation, were performed intramurally.

Social Services and Housing — Coordinator: Gerald Merner (387-6460)

Statistics Canada estimated the science expenditures of this Ministry based on those provided in 1986-87. Activities include both R&D and RSA in the social sciences.

Science Council of B.C. — Coordinator: Max Cairns (438-2752)

The Council provided awards for research projects, mainly to researchers in the university and industry sectors. The Graduate Research Engineering and Technology (GREAT) Awards, the Industrial Post-doctoral Fellowships (IPDF) and the Assistance Grants for Applied Research (AGAR) programs are administered by the Science Council. The Research Secretariat of B.C. provides administrative services to the Science Council and the Health Care Research Foundation.

Tourism, Recreation and Culture — Coordinator: Jim Lee (387-1428)

The Natural History Section of the Provincial Museum represented the source of the natural science expenditures of this Ministry. Related scientific activities in the social sciences were reported by the Research Services Section of Tourism Branch, Heritage Conservation Branch and the Provincial Museum.

Transportation and Highways — Coordinator: Sandy Watson (387-3198)
Dave Haughton (387-5859)

The Transport Policy and Public Affairs Branch participated in the support of a study into the "Transportation of Dangerous Goods in the Lower Mainland". The other participants supporting this study include Transport Canada and the Greater Vancouver Regional District. Geotechnical and Materials Engineering Branch reported performing R&D activities in the natural sciences.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

1. Economic Indicators

Province	Population January/88(1)		Provincial Gross Domestic Product per capita 1986(1)		Gross Domestic Expenditures on Research and development, 1986		Provincial GERD/PGDP 1986-87(2)	
	(000)	Rank	($)	Rank	($'000,000)	Rank	($)	Rank
Newfoundland	567	9	11,965	9	59	9	0.9	8
Prince Edward Island	128	10	11,484	10	25	10	1.7	2
Nova Scotia	881	7	14,277	7	174	6	1.4	3
New Brunswick	712	8	13,810	8	82	8	0.8	10
Quebec	6,619	2	18,045	4	1,497	2	1.3	4
Ontario	9,373	1	21,808	2	3,879	1	1.9	1
Manitoba	1,081	5	17,667	5	202	5	1.1	5
Saskatchewan	1,011	6	17,008	6	157	7	0.9	7
Alberta	2,385	4	24,431	1	601	3	1.0	6
British Columbia	2,961	3	19,080	3	506	4	0.9	9
Canada(3)	25,796		19,686		7,185		1.4	

(1) Canadian Economic Observer, Statistics Canada, Catalogue No. 11-010, August 1988.
(2) "Estimates of Canadian Research and Development Expenditures, by Region, 1979 to 1986 (Revised)", Science, Technology and Capital Stock Division, Statistics Canada, ST-88-14.
(3) Includes the Yukon and Northwest Territories.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

2. Higher Education

Province	Total research and development expenditures in the higher education sector, 1986-87(1)			Sponsored research in universities, 1986-87(2)		
	($'000,000)	Per capita ($)	Rank	($'000,000)	Per capita ($)	Rank
Newfoundland	31	54	5	15	26	8
Prince Edward Island	5	39	9	1	6	10
Nova Scotia	56	63	4	30	34	5
New Brunswick	26	36	10	13	18	9
Quebec	357	54	6	233	35	3
Ontario	667	71	3	370	39	2
Manitoba	79	73	2	38	35	4
Saskatchewan	53	52	7	34	34	6
Alberta	239	100	1	105	44	1
British Columbia	127	43	8	80	27	7
Canada	1,638	63		919	36	

(1) "Estimation of Research and Development Expenditures in the Higher Education Sector, 1986-87", July, 1988, Science, Technology and Capital Stock Division, Statistics Canada, ST-88-02.
(2) Financial Statistics of Universities and Colleges, 1986-87, Canadian Association of University Business Officers.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

3. Industry

Province	Value added by manufacturing activity per capita, 1985(1)		Current intramural industrial R&D expenditures per employee in primary and secondary industry, 1986(2)	
	($)	Rank	($)	Rank
Newfoundland	945	9	18	10
Prince Edward Island	735	10	235	5
Nova Scotia	1,688	7	129	8
New Brunswick	1,745	6	60	9
Quebec	3,727	2	789	2
Ontario	5,483	1	1,256	1
Manitoba	2,161	5	170	7
Saskatchewan	1,007	8	198	6
Alberta	2,242	4	439	4
British Columbia	2,612	3	506	3
Canada(3)	3,717		823	

(1) Manufacturing Industries of Canada; National and Provincial Areas, 1985, Statistics Canada, Catalogue No. 31-203.
(2) Results of 1986 Industrial R&D survey, Science, Technology and Capital Stock Division, Statistics Canada and The Labour Force, July, 1988, Statistics Canada, Catalogue No. 71-001.
(3) Includes the Yukon and Northwest Territories.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

4. Federal Government

Province	Total intramural expenditures on scientific activities 1986-87(1)	Total Federal scientific personnel 1986-87(1)	Total extramural payments on scientific activities 1986-87(1)
	($'000,000)	(Person-years)	($'000,000)
Newfoundland	50	586	16
Prince Edward Island	9	142	7
Nova Scotia	118	1,728	40
New Brunswick	32	509	34
Quebec(2)	229	2,443	339
Ontario(3)	351	4,751	393
Ottawa-Hull	1,258	17,158	116
Manitoba	111	1,818	40
Saskatchewan	48	684	33
Alberta	101	1,495	65
British Columbia	148	1,798	133
Canada(4)	2,478	33,272	1,217

(1) "Federal Government Science Expenditures by Region, 1986-87", Science, Technology and Capital Stock Division, Statistics Canada, July 1988.
(2) Excluding Hull.
(3) Excluding Ottawa.
(4) Includes the Yukon and Northwest Territories.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

5. Provincial

Province	Total provincial expenditures on scientific activities, 1986-87(1)			Total scientific expenditures of Provincial Research Organizations, 1987(2)	
	($'000)	Per capita ($)	Rank	($'000)	Rank
Newfoundland	25,321	45	3	...	...
Nova Scotia	...	...	...	6,763	7
New Brunswick	19,752	28	7	8,837	6
Quebec	...	...	...	28,563	2
Ontario	347,088	37	5	26,024	3
Manitoba	44,907	41	4	5,477	8
Saskatchewan	64,949	64	2	16,355	4
Alberta	329,358	138	1	43,476	1
British Columbia	92,713	31	6	8,569	5
Canada	...	...		141,064	

(1) "Scientific and Technological Activities of Provincial Governments, 1979-80 to 1987-88", Science, Technology and Capital Division, Statistics Canada, July 1988, ST-88-07.
(2) Science, Technology and Capital Stock Division, Statistics Canada.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

6. Gross Domestic Expenditures on R&D in Canada, by Performing Sector, by Province, 1986(1)

Province	Federal government	Provincial government	Provincial research organization	Total government	Industry	University	Private non-profit	All sectors
	($'000,000)							
Newfoundland	25	-	-	25	4	30	-	59
Prince Edward Island	9	-	-	9	11	5	-	25
Nova Scotia	87	1	3	91	27	55	1	174
New Brunswick	25	3	3	31	25	25	1	82
Quebec	175	43	16	234	872	357	34	1,497
Ontario	789	55	11	855	2,311	667	46	3,879
Manitoba	86	3	2	91	30	79	2	202
Saskatchewan	41	4	5	50	54	53	-	157
Alberta	75	23	26	124	238	239	-	601
British Columbia	104	15	2	121	254	127	4	506
Canada(2)	1,417	147	68	1,632	3,828	1,637	88	7,185

(1) "Estimates of Canadian R&D Expenditures, by Region 1979 to 1986 (Revised)", Science, Technology and Capital Stock Division, Statistics Canada, ST-88-14.
(2) Includes the Yukon and Northwest Territories.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

7. Gross Domestic Expenditures on R&D in Canada, by Funding Sector, by Province, 1986(1)

Province	Federal government	Provincial government	Provincial research organization	Total government	Industry	University	Private non-profit	All sectors (3)
	($'000,000)							
Newfoundland	37	-	-	37	4	16	2	59
Prince Edward Island	14	1	-	15	4	4	-	25
Nova Scotia	124	3	-	127	14	24	4	174
New Brunswick	51	5	-	56	10	12	1	82
Quebec	437	152	-	589	632	111	45	1,497
Ontario	1,203	140	-	1,343	1,837	298	84	3,879
Manitoba	113	8	1	122	24	40	10	202
Saskatchewan	65	21	-	86	42	17	5	157
Alberta	131	108	1	240	182	134	13	601
British Columbia	208	26	-	234	173	47	16	586
Canada(2)	2,384	464	2	2,850	2,924	703	180	7,185

(1) "Estimates of Canadian R&D Expenditures, by Region, 1979 to 1986 (Revised)", Science, Technology and Capital Stock Division, Statistics Canada, ST-88-14.
(2) Includes the Yukon and Northwest Territories.
(3) Includes Foreign sources of funds.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

8. Gross Domestic Expenditures on R&D in British Columbia, 1986(1)

Funding sector	Performing sector							
	Government				Business enterprise	Higher education	Private non-profit	Total
	Federal	Provincial	BCRC	Total				
	($'000,000)							
Government								
Federal	104	-	1	105	45	58	-	208
Provincial	-	15	1	15	5	6	-	26
BCRC	-	-	-	-	-	-	-	-
Sub-total	104	15	1	120	50	64	-	234
Business enterprise	-	-	1	1	170	2	-	173
Higher education	-	-	-	-	-	47	-	47
Private non-profit	-	-	-	-	-	12	4	16
Foreign	-	-	-	-	34	2	-	36
Total	104	15	2	121	254	127	4	506

(1) Beginning in 1985 the GERD includes R&D expenditures in both the Natural Sciences and Engineering and the Social Sciences and Humanities.

Source: "Estimates of Canadian Research and Development Expenditures by Region, 1979 to 1986 (Revised)", Science, Technology and Capital Stock Division, Statistics Canada, ST-88-14.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

9. Federal Government Grants and Contracts to Industry for R&D in the Natural Sciences, by Selected Department/Program and Region, 1986-87

Department/Program	NFLD	PEI	NS	NB	QUE	ONT	NCR	MAN	SASK	ALTA	BC	CANADA(1)
	($'000,000)											
A. R&D Grants:												
Regional Industrial Expansion:												
Industrial and Regional Development Program	0.1	0.1	1.1	1.6	17.7	18.1	1.1	1.0	0.5	1.9	6.9	50.3
Defence Industry Productivity Program	-	-	0.6	0.1	93.5	33.8	3.3	1.0	0.2	1.3	7.7	141.5
Other	0.6	-	1.4	--	6.6	0.1	0.1	--	1.5	--	0.1	10.5
Sub-total	0.7	0.1	3.1	1.7	117.8	52.0	4.5	2.0	2.2	3.3	14.7	202.3
National Research Council:												
Industrial Research Assistance Program	0.9	0.7	1.1	1.4	6.2	11.3	1.0	1.2	1.1	2.7	3.6	31.2
Program for Industry/Laboratory Projects	--	0.3	0.7	--	3.4	10.2	4.8	0.2	0.2	0.7	2.6	23.2
Other	0.3	-	--	-	6.4	2.7	0.9	0.1	-	-	0.1	10.6
Sub-total	1.2	1.0	1.8	1.4	16.0	24.2	6.8	1.5	1.3	3.4	6.3	65.0
Other	-	3.1	1.8	12.4	19.6	4.0	5.6	0.5	--	0.2	0.9	48.1
Total	**1.9**	**4.2**	**6.7**	**15.5**	**153.5**	**80.2**	**16.9**	**4.0**	**3.5**	**6.9**	**21.9**	**315.4**
B. R&D Contracts:												
National Defence	0.1	-	3.7	0.3	8.1	21.3	32.6	4.2	0.1	2.4	3.8	76.6
National Research Council	0.2	--	0.1	-	0.5	10.3	8.7	0.5	3.3	--	--	23.6
Supply and Services	0.3	-	1.1	--	0.5	3.6	2.1	-	0.2	0.6	4.9	13.3
Other	0.8	0.2	3.1	1.2	5.4	25.8	10.7	2.9	1.1	4.1	5.7	61.1
Total	**1.4**	**0.2**	**8.0**	**1.5**	**14.5**	**61.0**	**54.1**	**7.6**	**4.7**	**7.1**	**14.4**	**174.6**
Total, grants and contracts	**3.3**	**4.4**	**14.8**	**17.0**	**168.0**	**141.2**	**71.0**	**11.6**	**8.2**	**14.0**	**36.3**	**490.0**

(1) Includes Yukon and Northwest Territories.
The data expressed here are regional representations and will not correspond to Canada aggregates shown in other Statistics Canada publications. Total may not add due to rounding.

Source: "Federal Government Science Expenditures by Region, 1981-82 to 1986-87", Science, Technology and Capital Stock Division, Statistics Canada, July 1988.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

10. Federal Government Expenditures on Activities in the Natural Sciences, by Region and Selected Departments, 1986-87

Region	Agriculture	Energy, Mines and Resources	Environment	Fisheries and Oceans	Regional Industrial Expansion	National Research Council	Natural Sciences and Engineering Research Council	Other	Total
	($'000,000)								
Newfoundland	5	2	6	22	1	10	6	5	57
Prince Edward Island	7	4	1	-	-	1	-	3	16
Nova Scotia	10	17	11	61	3	10	10	26	148
New Brunswick	18	14	6	7	5	2	6	2	60
Quebec (excludes NCR)	42	36	42	31	119	51	63	142	526
National Capital Region (NCR)	87	195	15	11	5	240	13	266	832
Ontario (exludes NCR)	49	18	149	13	58	41	123	237	688
Manitoba	22	2	16	8	3	17	8	56	132
Saskatchewan	24	6	11	-	2	16	10	8	77
Alberta	39	24	23	-	3	5	27	34	155
British Columbia	35	12	26	52	15	42	37	40	259
Canada (1)	338	336	321	205	214	435	303	822	2,974

(1) Includes Yukon and Northwest Territories.

Source: "Federal Government Science Expenditures by Region, 1981-82 to 1986-87", Science, Technology and Capital Stock Division, Statistics Canada, July 1988.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

11. Federal Government Intramural Expenditures on Activities in the Natural Sciences, by Region and Selected Departments, 1986-87

Region	Agriculture	Atomic Energy of Canada Ltd	Energy, Mines and Resources	Environment	Fisheries and Oceans	National Defence	National Research Council	Other	Total
	($'000,000)								
Newfoundland	5	-	-	6	22	-	7	2	42
Prince Edward Island	7	-	-	1	-	-	-	1	9
Nova Scotia	9	-	12	10	58	13	7	1	110
New Brunswick	17	-	-	6	7	-	-	-	30
Quebec (excludes NCR)	39	-	8	42	30	42	32	15	208
National Capital Region (NCR)	82	-	186	14	10	22	224	193	731
Ontario (exludes NCR)	45	91	2	145	12	26	4	5	330
Manitoba	20	49	-	14	8	-	6	1	98
Saskatchewan	22	-	3	11	-	-	10	1	47
Alberta	36	-	21	22	-	13	-	-	94
British Columbia	33	-	8	25	50	10	9	1	136
Canada (1).....	317	140	246	311	197	126	299	221	1,857

(1) Includes Yukon and Northwest Territories.

Source: "Federal Government Science Expenditures by Region, 1981-82 to 1986-87", Science, Technology and Capital Stock Division, Statistics Canada, July 1988.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

12. Federal Government Intramural Expenditures on R&D in the Natural Sciences, by Region and Selected Departments, 1986-87

Region	Agriculture	Atomic Energy of Canada Ltd	Energy, Mines and Resources	Environment	Fisheries and Oceans	National Defence	National Research Council	Other	Total
	($'000,000)								
Newfoundland	5	-	-	-	10	-	6	1	22
Prince Edward Island	7	-	-	-	-	-	-	1	8
Nova Scotia	9	-	11	1	38	13	7	-	79
New Brunswick	16	-	-	2	4	-	-	1	23
Quebec (excludes NCR)	38	-	6	3	17	42	28	13	147
National Capital Region (NCR)	68	-	114	1	1	21	189	90	484
Ontario (exludes NCR)	42	85	1	31	3	26	2	3	193
Manitoba	17	46	-	1	8	-	5	1	78
Saskatchewan	21	-	1	6	-	-	9	-	37
Alberta	34	-	18	2	-	13	-	1	68
British Columbia	30	-	8	1	37	10	7	1	94
Canada (1).....	287	131	159	48	118	125	253	113	1,234

(1) Includes Yukon and Northwest Territories.

Source: "Federal Government Science Expenditures by Region, 1981-82 to 1986-87", Science, Technology and Capital Stock Division, Statistics Canada, July 1988.

INDICATORS OF PROVINCIAL SCIENTIFIC ACTIVITIES

13. Federal Government Personnel Engaged in Activities in the Natural Sciences, by Region and Selected Departments, 1986-87

Region	Agriculture	Atomic Energy of Canada Ltd	Energy, Mines and Resources	Environment	Fisheries and Oceans	National Defence	National Research Council	Other	Total
	(person-years)								
Newfoundland	96	-	-	67	219	-	60	11	453
Prince Edward Island	110	-	-	11	7	-	1	3	132
Nova Scotia	149	-	141	225	792	210	89	8	1,614
New Brunswick	290	-	1	90	91	-	3	5	480
Quebec (excludes NCR)	509	-	1	530	142	579	214	152	2,127
National Capital Region (NCR)	1,377	-	2,087	88	157	269	2,645	2,810(1)	9,433
Ontario (exludes NCR)	726	1,692	28	1,284	180	456	27	54	4,447
Manitoba	359	911	1	234	123	-	9	11	1,648
Saskatchewan	372	-	6	179	-	-	110	4	671
Alberta	581	-	212	419	-	183	2	4	1,401
British Columbia	411	-	75	353	528	136	96	10	1,609
Canada (2)	4,980	2,603	2,573	3,593	2,239	1,833	3,256	3,093	24,170

(1) Includes 1,108 person-years for Health and Welfare Canada, 322 person-years for the Department of Communications and 367 person-years for National Museums of Canada.
(2) Includes Yukon and Northwest Territories.

Source: "Federal Government Science Expenditures by Region, 1981-82 to 1986-87", Science, Technology and Capital Stock Division, Statistics Canada, July 1988.

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Activities of the Section are described in an annual report distributed free of charge entitled **Publications of the Science and Technology Statistics Program.** This report is published in December each year.

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Catalogued

88-001	Science Statistics (monthly)
88-201	Science and Technology Indicators, 1987 (annual)
88-202	Industrial Research and Development Statistics, 1986 (annual)
88-203	Resources for Research and Development in Canada, 1985 (out of print)
88-204	Federal Scientific Activities, 1988-89 (annual)
88-205E	Directory of Industrial Research and Development Facilities in Canada, 1986 (out of print)
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Scientific and Technological Activities of Provincial Governments, 1979-80 to 1987-88
Estimates of Canadian Research and Development Expenditures, by Region, 1979-1986
Estimation of Research and Development Expenditures in the Higher Education Sector, 1986-87
Federal Government Expenditures on Activities in the Natural Sciences and Engineering, 1963-64 to 1988-89
Federal Government Expenditures on Activities in the Social Sciences and Humanitites, 1970-71 to 1988-89
Federal Personnel Engaged in Scientific Activities, 1970-71 to 1988-89
Federal Government Science Expenditures by Region, 1981-82 to 1986-87